American Aviation

The Independent Voice of American Aeronautics **SEPTEMBER 1, 1943**

Boomerang

THE great Truman investigating committee has been on a spot lately and for very excellent reasons. Many months ago it got on the trail of what seemed to it to be a "scandal" in the Curtiss-Wright Corporation and especially at the Wright Aeronautical engine plant at Lockland, Ohio. For six months or so the Truman committee sat on its "scandal," but letting out tidbits and hints to newspapermen.

Fortnightly Review

Meantime the Army and the Wright officials went to work to eradicate the trouble. Then all of a sudden the Truman committee decided to relieve itself of the great "scandal" and of course the charges hit every newspaper in the country.

The net result of this expose was a nosediving of production. No P-47 ever dove faster than did morale and output at Lockland. It became a disgrace to work for Wright. One's neighborhood prestige was lowered immeasurably because, after all, had not the great Truman committee of the United States Senate called Wright a lot of nasty names?

Having accomplished this fine situation, the Truman committee now demands that Wright get its production up. It's like tearing down a house to find if there are any more loose nails, and then demanding that dinner be served pronto.

The Truman committee has no one but itself to thank for the production slowdown. What else it ever intended to accomplish in the middle of a war can be only a matter for academic speculation.

The Truman committee will do a service to the country by searching for

(Turn to page 8)

Offers Airport Plan

Charles I. Stanton, Administrator of Civil Aeronautics, last fortnight proposed a federal-state airport plan patterned after the highway program. He spoke at the Global Air Conference in St. Paul. (Page 16).

Late Bulletins

AWPC Elects

At an election in New York on Aug. 25, Lawrence D. Bell, president of Bell Aircraft Corp., was named president of Aircraft War Production Council East Coast Inc., succeeding J. Carlton Ward, president of Fairchild Engine and Airplane Co. L. C. Goad, General Motors vice president and manager of the company's Eastern Aircraft Division, was named vice president.

Asks Separate Air Arm

Maj. Gen. H. L. George, commanding general, Air Transport Command, said Aug. 25: "Gen. Mitchell preached for a separate air force and we still haven't got it. It would hasten mass production and do away with similar, yet different designs."

More Applications: Look for more applications—important ones—to be filed with CAB for new air routes, mostly international. Those who believe the recent flood of applications represents the peak should remember that the 16 domestic airlines, who several weeks ago came out with a declaration of policy and indicated their intention to file, have only started. Northwest Airlines has filed for lines to the Orient, American to London. But most of the others are yet to be heard from.

NOT TO BE TAKEN FROM LIBRARY

Trend of the News

Policy Statement: CAB, which in May reversed its examiner, last fortnight reversed itself and awarded Western Air Lines a Los Angeles-San Francisco route. Its statements on competition in the revised opinion seem to indicate a more liberal policy on having two airlines between the same terminals. In view of several big cases soon to be heard, this policy may prove important.

CAP Expansion: Look for expanded activities soon for the Civil Air Patrol. It will be in the direction of courier services and will give many inland CAP's a real job to do. So far the CAP coastal patrol has been the most spectacular and most-publicized activity, but courier services have proved their value in a number of areas. Against stiff opposition by many doubting Thomas's in the War Department (of which there are many), CAP has gradually added to its prestige and recognition. In the meantime through lack of local initiative a number of state units have started to disintegrate. The new courier service responsibilities will pep these units up in a big way.

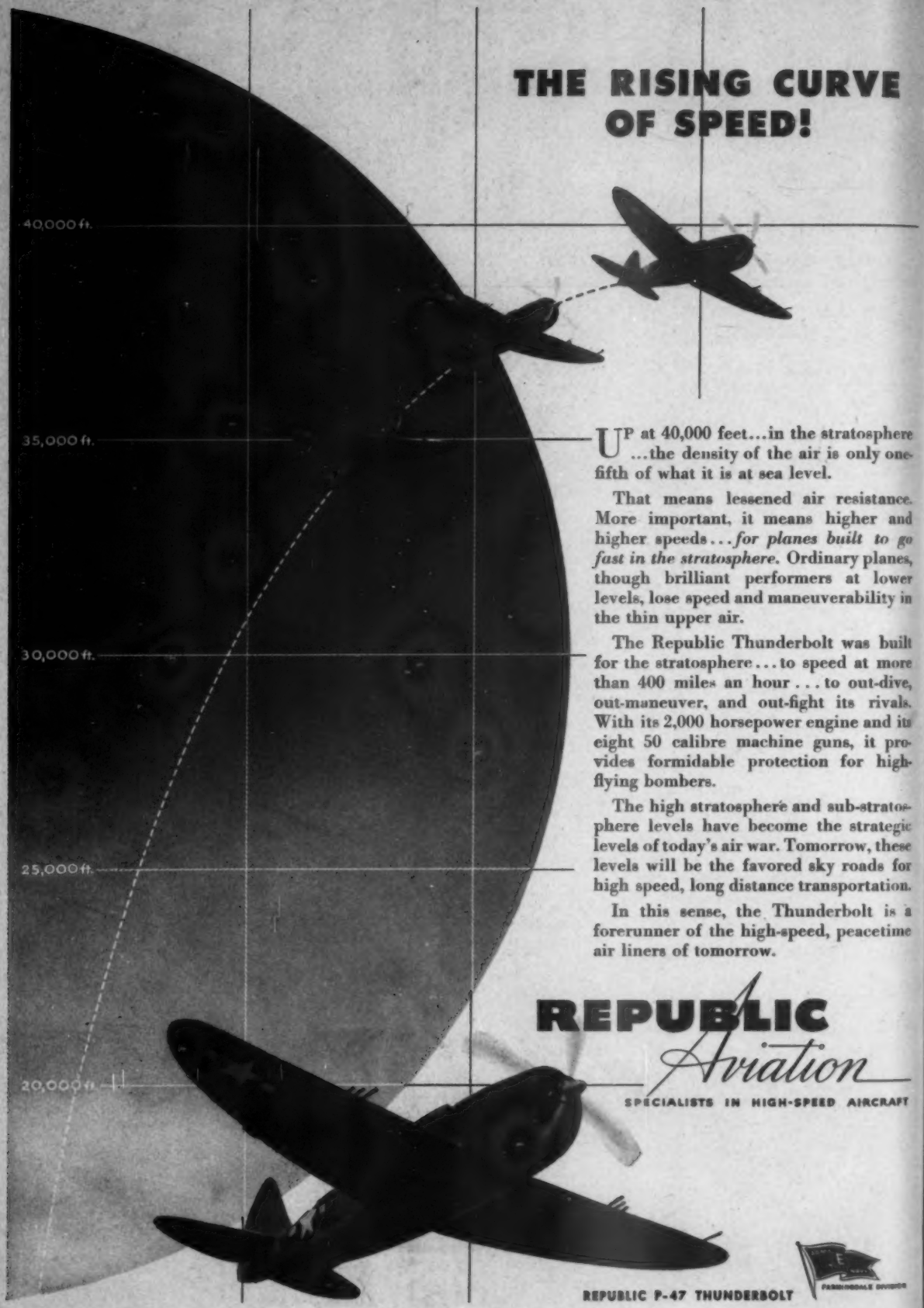
Contract Transfers: The possibility of taking non-aircraft war contracts entirely out of the aircraft production centers is being given serious consideration by the War Dept. Contract surveys are being made in some of the tightest spots and decisions can be expected soon on the question of transferring such contracts to areas where labor is available, thus permitting the shift of non-aircraft workers to the aircraft plants.

Postwar Taboo?: The attitude of War and Navy Dept. officials toward postwar planning in the aircraft manufacturing industry has created complications for the industry. While other arms of the government are seek-

(Turn to page 6)

20c

THE RISING CURVE OF SPEED!



UP at 40,000 feet...in the stratosphere ...the density of the air is only one-fifth of what it is at sea level.

That means lessened air resistance. More important, it means higher and higher speeds... *for planes built to go fast in the stratosphere.* Ordinary planes, though brilliant performers at lower levels, lose speed and maneuverability in the thin upper air.

The Republic Thunderbolt was built for the stratosphere... to speed at more than 400 miles an hour... to out-dive, out-maneuver, and out-fight its rivals. With its 2,000 horsepower engine and its eight 50 calibre machine guns, it provides formidable protection for high-flying bombers.

The high stratosphere and sub-stratosphere levels have become the strategic levels of today's air war. Tomorrow, these levels will be the favored sky roads for high speed, long distance transportation.

In this sense, the Thunderbolt is a forerunner of the high-speed, peacetime air liners of tomorrow.

REPUBLIC *Aviation*

SPECIALISTS IN HIGH-SPEED AIRCRAFT

REPUBLIC P-47 THUNDERBOLT

FARMINGDALE DIVISION

Photo by
Hugelmeyer
1st Air Force

Snub-nosed, lethal-appearing Republic Thunderbolts are proving the deadliest sky scrappers in action today. With their pulverizing 6,400 rounds-per-minute firepower and their 1,000-mile range, the P-47 fighters are punching down all opposition to help the United Nations gain absolute air mastery over the European invasion front. The 13,500 pounds overall weight of the Thunderbolt includes eight machine guns mounted in the wings, a 2,000-horsepower radial engine, and a turbo-supercharger. With a level flight speed exceeding 400 miles per hour, the P-47 Thunderbolt has dived at 780 m.p.h. Its ceiling of 40,000 feet makes it an effective protector of bomber armadas.

For fine achievement in War Production . . . the Joint Army and Navy "E" was awarded to the men and women of Simonds Saw and Steel Co.

AIRCRAFT ARMOR PLATE

— by SIMONDS meets Army and Navy Specifications

For Complete Information
Address
Armor Plate Division

ARMY E NAVY

SIMONDS

SAW AND STEEL CO.
FITCHBURG, MASS.

CLAYBORNE

AIRCRAFT ENGINE STANDS

Selected!

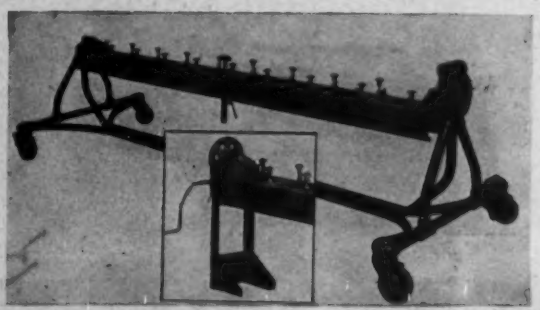
For Superior Performance
For Improved Design
For Greater Strength
For Lighter Weight

Clayborne Engine stands are different—and better. Built of carbon steel tubing for greatest strength and lightest weight, the unique series of interlocking triangles insures rigidity to support the heavy loads of latest model aircraft engines. Engines are easily rotated full 360° to give free access for every operation without tiresome stretching and straining. Radial engine stands are equipped with revolving rings. Each of eight hardened groove ball bearings will withstand side thrusts of over 4500 lbs. Easily portable. CLAYBORNE stands are definitely superior for continuous line production. We invite comparison with any similar equipment.

The call for boosted production is imperative. Speed engine assembly and overhaul with CLAYBORNE Stands.

There are Clayborne stands for practically every type of aircraft engine.

CLAYBORNE CYLINDER STANDS



Speed up valve work and valve assembly. Each Clayborne Cylinder stand takes a full set of nine cylinders and holds them securely locked in position. Portable and stationary models, as illustrated. By simple turn of handle all cylinders are rotated to any desired working position. Ball bearing trolley travels entire length of box, equipped with plunger which locks in place to hold valves against seat during assembly of valve spring and rocker box mechanism. Eliminates clumsy and dangerous stacking in dollies, handling dolly to bench, etc. Already standard equipment in leading aircraft plants to speed assembly of cylinder units.

Write for Catalog Sheets describing our Complete Line.

MOTOR REBUILDING SPECIALTIES

(Formerly R. F. Clayborne)

2634 SOUTH MICHIGAN AVENUE **CHICAGO, ILL.**

American Aviation

Vol. 7, No. 7 **September 1, 1943**

Manufacturers Call Conference 15
Stanton Offers Airport Plan 16
Manpower Issue Studied 17
Feeder Hearing Scheduled 19
5 Types of Postwar Service Seen 21
WAL Gets L. A.-San Francisco 42
Cargo Handling Important 68

The Independent Voice of American Aeronautics

Published the 1st and 15th of each month by American Aviation Associates, Inc., American Building, 1317 F Street, NW., Washington, D. C. Printed at The Telegraph Press, Cameron and Kelker Sts., Harrisburg, Pa. Entered as second class matter at Washington, D. C. and Harrisburg, Pa.

WAYNE W. PARRISH, EDITOR AND PUBLISHER

ERIC BRAMLEY, EXECUTIVE EDITOR

DEPARTMENT EDITORS: Katherine E. Johnsen (Congress); Conrad Campbell (Manufacturing); E. J. Foley (Equipment); Peggy Guetter (West Coast); Clifford Guest (Special Assignments); Barbara B. C. McNamee (Training); William Thompson (Production Manager).

BUSINESS MANAGER, Thomas E. Lindsey

●

REGIONAL REPRESENTATIVES:

Miss Peggy Guetter, West Coast Representative, Room 1404, Park Central Bldg., 412 West Sixth St., Los Angeles, Cal. Telephone: Vandike 2680.

Harry Brown, Midwestern Advertising Manager, 522 Briar Place, Chicago, Ill. Telephone: Lakeview 6704.

O. R. Elofson, Eastern Advertising Manager, 2207 RKO Bldg., 1270 Sixth Avenue, New York, N. Y. Telephone: Circle 6-9446.

J. Forecast, British Representative, Edwin Greenwood, Ltd., Strand, W.C.2, Thanet House, London, England.

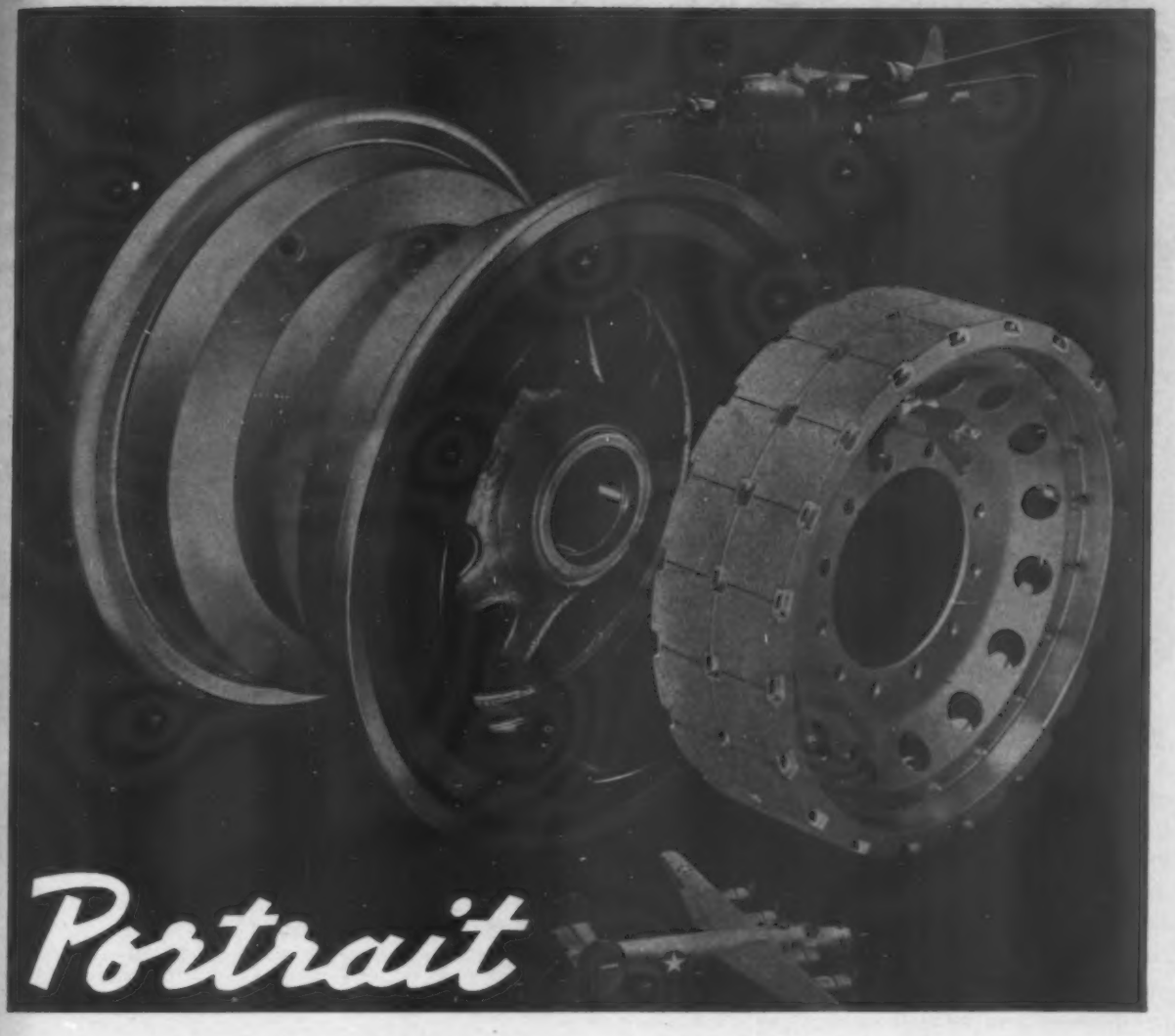
PUBLISHING CORPORATION: American Aviation Associates, Inc., Wayne W. Parrish, President; Col. Albert H. Stackpole, Vice-President (in active military service); Eric Bramley, Vice-President; Brig. Gen. E. J. Stackpole, Jr., Treasurer (in active military service); Thomas E. Lindsey, Sec'y.

AMERICAN AVIATION: Subscription rates for U. S., Mexico, Central and South American countries—$3 for 1 year; $5 for 2 years; $5 for 3 years. Canada—$3.50 for 1 year; $6.50 for 3 years. All other countries—$4.50 for 1 year; $9.50 for 3 years.

AMERICAN AVIATION DAILY: Published six days each week except holidays; dispatched by air mail. $15 per month; $85 for six months; $170 per year. Group company rates on request. Service Bureau available to all subscribers. CONRAD CAMPBELL, *Managing Editor.*

AMERICAN AVIATION DIRECTORY: Published twice a year, spring and fall. Complete reference data on administrative and operating personnel of airlines, manufacturers, accessories firms and their products, organizations, schools and local operators. Federal and state government agencies concerned with aviation. Single copy, $5; Annual subscriptions, $7.50. Discounts on quantity orders. Next edition scheduled for April. HELEN L. WALSH, *Managing Editor.*

UNIVERSAL AIRLINE SCHEDULES: Published and revised monthly at 139 North Clark Street, Chicago, Ill. (Telephone: State 2154). Complete airline schedules, fares, and travel information, including international air transportation. Subscription rates: $5.00 per year. Airline rates on request. H. D. WHITNEY, *Managing Editor.*



OF A "CREW MATE" THAT STARTS A FLIGHT . . . AND ENDS IT

"THE PORTRAIT" *Hayes Aircraft Wheel and Expander Tube Brake as used on the C-46 and other ships, Boeing B-17 Flying Fortress and Consolidated B-24 Liberator (illustrated) are also Hayes equipped.*

Slugging fight or routine flight—Hayes Wheels and Brakes mean accurate ground control in getting the ship off and landing it . . . last to leave the ground and first on the return.

War-tested in combat and training, as well as by the Air Transport Command and nation-wide airline operators, Hayes Wheels and Brakes rate "E" for Economy and Efficiency—in low maintenance cost, low cost per landing, stamina under punishing operation, ease of maintenance in the field—as well as accuracy of control under the gruelling ground variables of sand, steel, concrete or snow.

Representatives: *Eastern . . . J. Henry Reisner, Hagerstown, Md.*
Western . . . Airsupply Co., 5959 W. 3rd St., Los Angeles.

HAYES AIRCRAFT WHEELS AND BRAKES . . .

HAYES INDUSTRIES, INC. Home Office: JACKSON, MICHIGAN, U. S. A.

Back in the Fight —Faster!

FAST servicing of aircraft in the field is vital to fighting efficiency. But sacrificing precision to gain time could result in costly losses, due to performance failures. Under combat conditions, the wonders performed by the skilled ground crews are amazing demonstrations of their fine training and of the precision performance of tools like Dumore Grinders—compact, versatile, dependable. Even in a jungle maintenance hut, the Dumore Grinder holds to a ten-thousandth of an inch, as surely as it does in a well equipped engine factory.

Mounted on lathe, shaper, miller or any available machine, Dumore Grinders will handle any grinding job, external, or internal, to a depth of 24 inches at speeds up to 42,500 r.p.m.

Dumore distributors, located in principal cities, are ready to furnish complete details on the capacities of various models—or write us for complete catalog today! The Dumore Co., Grinder Division, Racine, Wis.

Dumore

PRECISION GRINDERS

FOR BETTER MAINTENANCE AND REPAIR

SOLD BY AUTHORIZED DISTRIBUTORS IN ALL PRINCIPAL CITIES

[redacted]

(Continued from page 1)

ing some pattern for a conversion of facilities or continuation of employment after the war, aircraft manufacturers do not want to be placed in the light of devoting efforts to the future when inference of the military is that they should be thinking only of currently needed production. The word "postwar" has just about been dropped from the manufacturing vocabulary.

Changing Army Clause: The so-called "Army clause" in contracts now held by manufacturers with the Air Corps disregards too many of the problems incident to contract termination and should be modified immediately in the opinion a contract termination specialist panel appointed by the Aircraft War Production Council. Both the East and West Coast Councils have appointed such panels and joint recommendations will be forthcoming soon. The industry views the problem of developing adequate contract termination patterns as of immediate importance.

Aviation Insurance: The Committee on Aviation Insurance Law of the American Bar Association, under the chairmanship of W. Percy McDonald, head of the Tennessee Aeronautics Commission, submitted a report at the association's convention Aug. 24 calling for legislation providing for "investigation consultation with state agencies and reports to Congress from time to time concerning aviation insurance." It commended the House Foreign and Interstate Commerce Committee and urged continuing investigations of the question of liability of carriers by air to passengers and shippers and persons and property owners on the ground. Strong opposition was expressed against any legislation which would set up another government bureau in competition with private American enterprise as proposed in H. R. 1992 (the surplus aircraft bill) in connection with aviation insurance.

Councils Point the Way: The whole chain of production developments represent almost complete acceptance by government and air force officials of industry recommendations, although acceptance has come in piecemeal fashion. Pioneered by the West Coast AWPC and unified through the National Council, practically all recommendations from piece-and-part material scheduling to the current draft deferment have been adopted. The councils are taking still another look ahead and appointing committees to draw up specific proposals for contract termination.

Separate Air Force: While our bombers plastered Europe last fortnight, the clamor for a separate air force continued. With Congress returning, this clamor will grow—War Dept. officials favoring the move will furnish ammunition if it is needed. The Navy, on the other hand, will take steps to see that its toes aren't tramped on.

Breaking the Bottlenecks: When the airlines get some more planes, as they are scheduled to in the next few months, they are expected to aim first at breaking the bottlenecks now existing in mail and express shipments. Relatively few cargo schedules will do the trick. This will keep the Post Office satisfied, and will enable vital war shipments to get through on time. Even with the few planes that have been returned to the airlines, the air mail situation has improved materially.

Wide Open: There will be no change in CAB policy of allowing anyone to file an application for a new air route. Rumors that new companies would be required to post a bond are entirely unfounded. At hearings, applicants must prove fitness, willingness and ability (including financial ability). This is where the fly-by-night operators will be weeded out.

CAA Maps More New Air Traffic Controls
With Installations to Start as War Ends
A preview of the Civil Aeronautics Administration's post-war airsafety program disclosed tonight plans for installation of additional air traffic control systems in the New York and Washington areas.
These installations should be ready for use by 1945, the CAA said, and similar systems should be planned for Chicago, Cincinnati, Cleveland, Los Angeles and Oak-
by 1955, when air traffic will reach an unprecedented peak.
The projects will be discussed along with CAA suggestions for regulation of post-war international air traffic at the annual CAA air traffic control and communications conference opening Thursday in Chicago.
The CAA will urge early establishment of an international air
After the war, the CAA
the airways will be as
traffic that they must be
much as is highway and
traffic.
The CAA suggests that
stallation program could be
public works project
of the work will
and 1950, a period
in which
labor into worth-while
projects."
The Chicago conference
also will include:
1. Recommended
stretch the capacity of
cilities and procedures
traffic until 1945, as well as
provements which must
by then.
2. Air traffic routing
with a view to eliminating
tion at major centers by routing
through traffic around these points.
3. The CAA training

If the war should end tomorrow . . .

RADIO RECEPTOR, with a wealth of experience encompassing the entire history of radio, would be ready to convert its greatly expanded facilities to the construction and installation of Ground-to-Air Navigation, Communications and Airport Traffic Control Equipment for civilian use.

Now devoted to the war effort, these engineering and production facilities that built the first commercial ultra-high-frequency airport control units, which were installed at Washington National Airport for the Civil Aeronautics Administration, will be in a position to provide all advanced types of airport radio equipment—for municipal and private fields—under a single contract, if desired.

Today, RADIO RECEPTOR installations assure increased safety and efficiency in airports throughout the world. We'll be glad to send a copy of our revised booklet, "HIGHWAYS OF THE AIR", now in preparation. Please write on your business stationery to our Executive Offices, 251 West 19th Street, New York 11, N. Y.

RADIO RECEPTOR CO., INC.

Awarded for Meritorious Service on the Production Front

SINCE 1922 IN RADIO AND ELECTRONICS

Editorial

(Continued from page 1)

and uncovering every defect it can find in the war program. But to pour loose charges over the entire country is a great dis-service which can only result in less output.

Perhaps the Truman committee became too overconfident at its earlier successes and triumphs. Perhaps the national publicity it received was just a little too much for its sane judgment. Whatever happened, the committee pulled a boner of great magnitude. It, and not the Wright company as it charged, is a detriment to the war effort. If Senatorial investigating committees are to be so completely irresponsible in the execution of their public offices, then we can only chalk up a mark of disappointment in our democratic ways of doing things.

The Truman committee should get busy and apologize for messing things up.

Drizzle from Heaven

THE airlines are going to get some more transport planes—several dozen of them. This is good news. It could be better, but the additions to the system fleet for the nation will remove many bottlenecks in air mail and express. This should be merely the first batch of airplanes returned. Meantime one can't move around the country without hearing of the use of transport planes by the Army, such as the group of officers who flew a DC-3 on a fishing trip into northern Minnesota just a few weeks ago. The fact that the DC-3 was sitting on a landing field up there for a week of course could not possibly connote any abuse of equipment by the Army. No more than the tons of food wasted by the Army in cooking for men on furlough could connote carelessness and negligence as American citizens. But the airlines are getting two dozen planes returned for the war job in America and we should be thankful for this minor concession. Somebody must have discovered how many man hours were lost in Southern California aircraft plants because of non-delivery of vital parts by air express. What a story could be told!

Northwest No. 2

SO rapid has been the expansion of war-time activities of domestic airlines that some of the more spectacular happenings have escaped proper notice. Northwest Airlines only two years ago had about 600 employes. Today it has over 10,000. It is not only continuing to operate its airline between Chicago and the west coast but it is operating two modification centers (one far off its own line), it is operating a substantial fleet for the Air Transport Command to Alaska, and it has several schools under contract with the Army. When one considers that most of the jobs its employes hold are skilled, or highly specialized, one cannot help but feel a lot of pride in knowing the airline and its executives. Today Northwest Airlines has more employes than any other airline in the country except Pan American Airways. That's a heap of expansion for an airline that was fifth or sixth in employment two years ago.

Progressive Detroit

WE LIKE to rib Detroit because its airport terminal has always been at the top of our list as the dirtiest terminal building in the western hemisphere. (Ray Baker's cozy little airport cafe is the only refuge for miles around). And now comes the Commissioner of Public Works, a Mr. William M. Walker, who told Detroit newspapers the other day that he was getting all worn out listening to arguments on behalf of a new airport.

"I'm getting mighty thin-skinned about all this talk of no airport," he said a little wearily and with an obvious sense of humor because—imagine a Detroit public official being thin-skinned! "A check of big planes taking off from the City Airport shows none requires more than 1,400 feet either to land or take off."

It seems that Mr. Walker was upset because Major General Ralph Royce, who is *our* kind of fellow, told Detroit it ought to plan for 10,000-foot runways, and Mr. Walker is not at all convinced. What somebody failed to do was to explain to Mr. Walker how those planes only use 1,400 feet of runway. After all, those parachutes attached to the planes drop them in mighty carefully. But come to think of it, how *does* one manage to get a transport plane into that Detroit airport? It's been a puzzle to us all along, and when one *does* get out of the plane into that terminal—of well, Mr. Walker, why not buy a few brooms and forget all about it.

Remarkable Tribute

IF our information is correct *The Saturday Evening Post* has never devoted a consecutive series of five articles to any single subject until the current series by Joseph Matthewson on Pan American Airways and its president, Juan Terry Trippe. This in itself is a tribute to the magnitude of PAA and its place in the world air scheme, and is another illustration of the spotlight that will be thrown on aviation after the war. As a struggling new industry, aviation never quite made the big-time grade of power-politics and international limelight. But it will from here on out.

Historic Expansion

NOT that we want to get into any competitive arguments about who should be flying into Washington, but we do think it is worthy of the record that the air transport system of the United States has been expanded historically by the inauguration of scheduled service into the national capital by two additional transcontinental airlines. Washington deserves the service. It has not deserved to be an off-line city for westerly traffic. With United and TWA providing direct service into the capital, Washington now takes its place as one of the best-served air terminals in the world. Not in the past five years has any more significant expansion taken place in the nation's airline network.

WAYNE W. PARRISH.

The B.F. Goodrich Airplane of the month

CONSOLIDATED PB2Y-3

FIRST TO SPOT AND CONTACT the enemy in many a sea battle are these great patrol bombers of the U. S. Navy which operate thousands of miles out ahead of the fleet. Popularly called the Coronado, the PB2Y-3, built by Consolidated Vultee Aircraft Corporation, is the largest and most powerful mass production airplane in Navy service.

B. F. Goodrich equipment helps the Coronado perform its vital tasks with greater safety and efficiency. De-Icers, for example, crack off dangerous ice when it forms on wing and tail surfaces. And in the thick of battle, B. F. Goodrich Bullet-Sealing Fuel-Cells cut the hazard of gasoline leakage and explosion.

To the men who fly them, a nation's praise and gratitude. To the plane itself, a salute, and our nomination as "Plane of the Month."

In war or peace

B.F.Goodrich

FIRST IN RUBBER

B.F. GOODRICH RUBBER RESEARCH FOR THE *Aviation industry*

A MACHINE GUN SLUG made the gaping hole shown at right . . . a slug ripping out through a fighter plane's fuel tank. And this jagged hole—called a "flower" by technical men—would have written a flaming finis to a fighter pilot's life if it had been made just a few years ago. For then, gasoline would have poured through . . . ignited . . . !

Today it's different . . . with *our* planes at least. Our fliers cheat death time and again because *their* fuel reservoirs can take it. They can be pierced by 30's, 50's, even 20-mm. cannon shells . . . "flowers" can bloom all over their outside surfaces . . . but the bullet-sealing *inside* lining holds.

On this "inside lining" hangs a tale . . . a story of research and development that B. F. Goodrich had a large part in writing. It starts back in World War I when engineers first attempted to make fuel tanks self-sealing. Some initial success was achieved by covering the *outside* of a regular tank with rubber compounds and then covering the rubber with a protective layer of leather. But as the power of gunfire increased, the outside covering method lost its effectiveness. Bullets passing through would force out jagged "flowers" on the exit side and rip off large sections of the covering—making self-sealing impossible.

B. F. Goodrich engineers were first to work out a practical solution to this "flowering" problem. They lined a tank instead of covering it, and in so doing made the forerunner of the bullet-sealing fuel cell most commonly used today. The schematic drawings on the opposite page show why the inside lining works where the outside covering failed.

The development of the leak-proof tank insert is just one of many contributions B. F. Goodrich has made. Our engineers have done extensive work in compounding improved sealant materials. They have supplied linings and sealants that function satisfactorily in contact with aromatic fuels which tend to dissolve ordinary materials. They have devised special forms on which to build fuel tanks, which can be made up in all of the great variety of complex shapes required. They developed synthetic rubber molded connections and effective adhesives for use in fuel-cell constructions. They constructed self-sealing hose to assure safe transmission of the fuel from the fuel tank to the airplane's engines.

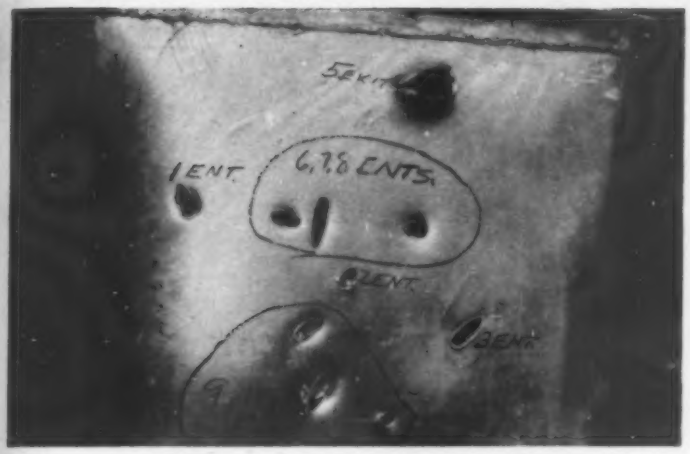
MAKERS OF B. F. GOODRICH TIRES AND OVER 80 RUBBER AND SYNTHETIC RUBBER PRODUCTS FOR AIRPLANES

ARMY E NAVY

Awarded to seven plants

Firing tests prove fuel cells can take it

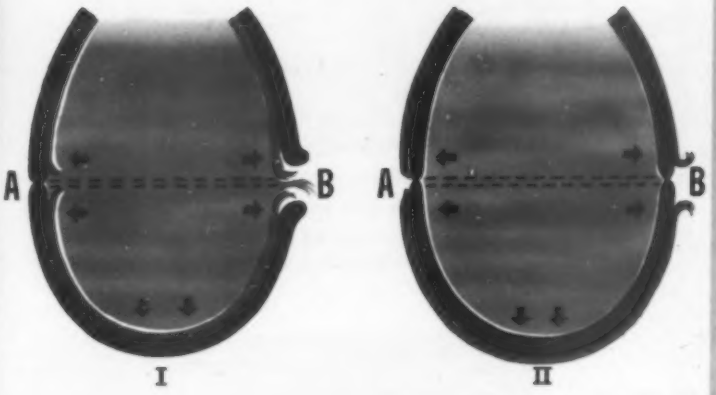
BEFORE THEY TAKE OFF !



Every combat condition is simulated in these tests...

Machine gun bullets—both 30's and 50's—incendiaries, and cannon shells are fired at test tanks filled with gasoline. Shot after shot is pumped into them from all angles to see how much they can take without leaking or exploding. Bullets are even ricochetted into the tanks to simulate deflection from a strut, propeller or some other part of the plane under fire. And these tests prove that tanks with B. F. Goodrich bullet-sealing inserts can absorb the terrific punishment necessary to bring our planes back after sky battles against overwhelming odds.

How "flowering" was licked with B. F. Goodrich bullet-sealing inserts



The two schematic cross-section drawings above show what happens when high-power bullets pierce the old-type covered tank and the modern "lined" tank. Bullet enters at (A) and exits at (B) in both; arrows indicate pressure direction. In sketch I (old type) fuel rushing out of (A) under pressure forces covering from side of tank, thus retarding self-sealing there. At (B) the terrific force causes the metal to flower, ripping a big jagged hole in the covering and stripping it off the outside. Obviously, sealing is impossible. In sketch II (modern type) the pressure exerted at (A) holds the insert tight against the metal tank and prevents separation. At (B) pressure again holds the insert tight against the tank; thus the bullet makes a cleaner hole in insert, and the flowering, being outside, is harmless.

In war or peace

B.F.Goodrich

FIRST IN RUBBER

PRIVATE GEORGIE GREMLIN SCORED 0 ON THIS

DE-ICER QUIZ

CAN YOU SCORE 100%?

Complete the ten statements by simply picking the one correct part (a, b or c) following each numbered statement. See if you can get them all.

1. De-Icers are located on . . .

a. The leading edges of wing and tail surfaces.
b. Carburetor air intakes.
c. Windshields.

2. De-Icers are made of . . .

a. Chrome-tanned elkhide.
b. Rubber and fabric.
c. Specially rolled 88-gauge aluminum alloy.

3. Each De-Icer contains . . .

a. Central tube area flanked on top and bottom by elastic stretch areas.
b. An electric heating unit encased in rubber.
c. Perforated layers of metal-reinforced leather.

4. De-Icers are operated by . . .

a. Super-heated oil at 10 lb. per sq. in. internal pressure.
b. Air.
c. Alcohol and carbon tetrachloride.

5. A De-Icer's tubes pulsate in order to . . .

a. Keep rubber from freezing.
b. Keep ice from forming.
c. Crack off ice after it forms.

6. Aluminum fairing strips are used in De-Icer installations . . .

a. To drain static electricity from De-Icer surface.
b. Because brass is not obtainable.
c. To streamline the De-Icer attachment and to act as a washer strip for the attachment screws.

7. De-Icers are attached with . . .

a. Rivnuts and screws.
b. Rivets.
c. Zoot nuts.

8. Metal end strips are used to . . .

a. Cut down wing flutter.
b. Prevent endwise creep or movement of the De-Icer.
c. To restrict tube inflation.

9. The outer surface of De-Icers is covered with a special conductive coating which . . .

a. Sets up anti-magnetic waves.
b. Bleeds off static charges that might cause punctures and explosions.
c. Cuts down air friction.

10. The rows of small vent holes in the top and bottom elastic areas are placed there to . . .

a. Trap wing-boring gremlins.
b. Cool the De-Icer system when it is not in use.
c. Facilitate movement during inflation and aid in keeping the deflated De-Icer tight against the wing.

WHAT IS YOUR SCORE?

Each correct answer counts 10. 1-a, 2-b, 3-a, 4-b, 5-c, 6-c, 7-a, 8-b, 9-b, 10-c.

This is one of a series of maintenance quizzes prepared for ground crew trainees of the U. S. Army Air Forces Technical Training Command. It is our hope that this series will help all maintenance men get maximum service, safety, and efficiency from military, commercial, and civilian aviation equipment.

B. F. GOODRICH, AERONAUTICAL DIVISION, AKRON, O.

Skyway or Highway

B.F.Goodrich

FIRST IN RUBBER

Back the Attack—with War Bonds

Wing of battle

The pilot said, "I looked out at our right wing and saw it was all shot to hell. There were holes everywhere. A couple of them were shell holes—big enough to drive a sheep through. The other wing was all shot up, too."

But with two engines knocked out, with rudder and stabilizers torn by exploding shells, half of the controls shot away . . . the Boeing Flying Fortress fought off 40 Focke-Wulfs and made her way home safely to England.*

THAT TRIP really started on a drafting board in the Boeing plant at Seattle, where the wing you here see under construction was designed.

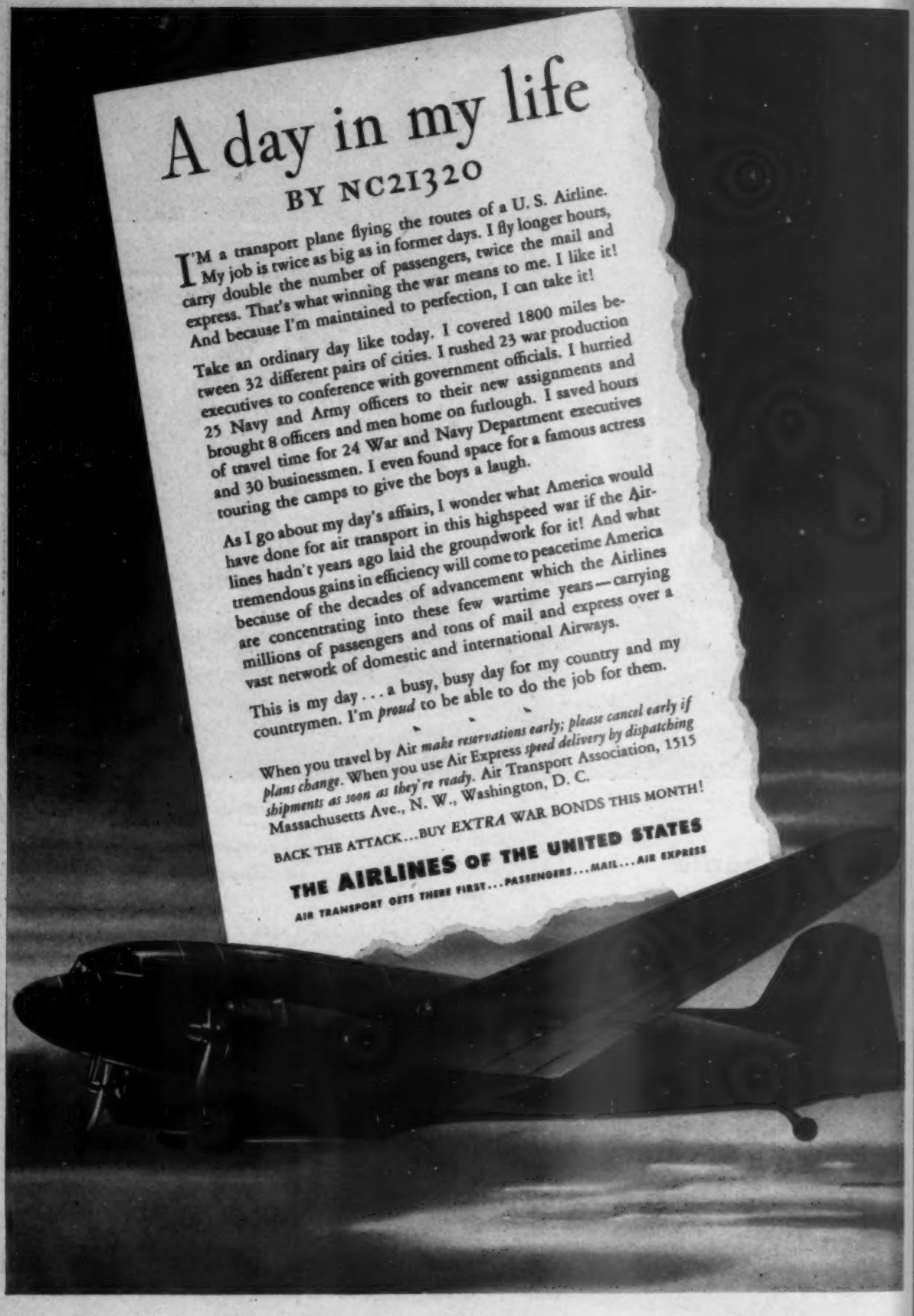
It is rather a remarkable wing. For one thing, it is today carrying double the load it was originally intended for . . . including bomb loads ranging up to 10 *tons*, equaling or surpassing any other bomber now in service.

The enemy have found it a difficult wing to put out of commission. Axis pilots have learned that even when they pump hundreds of bullets into a Fortress wing, it does not collapse. One reason is that Boeing distributes the stresses in such a way as to minimize the effect of damage in any one locality; the enemy can shoot pieces out, but can seldom destroy the wing entirely. Such a wing might appear difficult to manufacture, but Boeing builds them in large numbers with a minimum of man-hours—a tribute to Boeing production engineering.

Some day Boeing skills in research, design, engineering and production will be turned once more to products of peace. And then, as now, you may know of any product . . . if it's "Built by Boeing" it's bound to be good.

DESIGNERS OF THE FLYING FORTRESS • THE STRATOLINER • PAN AMERICAN CLIPPERS **BOEING**

*THE TERMS "FLYING FORTRESS" AND "STRATOLINER" ARE REGISTERED BOEING TRADE-MARKS



A day in my life

BY NC21320

I'M a transport plane flying the routes of a U. S. Airline. My job is twice as big as in former days. I fly longer hours, carry double the number of passengers, twice the mail and express. That's what winning the war means to me. I like it! And because I'm maintained to perfection, I can take it!

Take an ordinary day like today. I covered 1800 miles between 32 different pairs of cities. I rushed 23 war production executives to conference with government officials. I hurried 25 Navy and Army officers to their new assignments and brought 8 officers and men home on furlough. I saved hours of travel time for 24 War and Navy Department executives and 30 businessmen. I even found space for a famous actress touring the camps to give the boys a laugh.

As I go about my day's affairs, I wonder what America would have done for air transport in this highspeed war if the Airlines hadn't years ago laid the groundwork for it! And what tremendous gains in efficiency will come to peacetime America because of the decades of advancement which the Airlines are concentrating into these few wartime years—carrying millions of passengers and tons of mail and express over a vast network of domestic and international Airways.

This is my day . . . a busy, busy day for my country and my countrymen. I'm *proud* to be able to do the job for them.

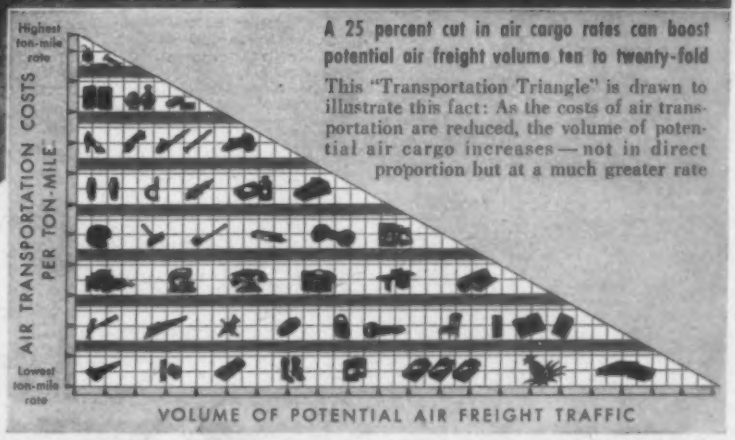
When you travel by Air *make reservations early; please cancel early if plans change*. When you use Air Express *speed delivery by dispatching shipments as soon as they're ready*. Air Transport Association, 1515 Massachusetts Ave., N. W., Washington, D. C.

BACK THE ATTACK...BUY *EXTRA* WAR BONDS THIS MONTH!

THE AIRLINES OF THE UNITED STATES

AIR TRANSPORT GETS THERE FIRST...PASSENGERS...MAIL...AIR EXPRESS

PREDICTION: Postwar freight will fly ... at less than 15 cents a ton-mile


Highest ton-mile rate
AIR TRANSPORTATION COSTS PER TON-MILE
Lowest ton-mile rate
VOLUME OF POTENTIAL AIR FREIGHT TRAFFIC

A 25 percent cut in air cargo rates can boost potential air freight volume ten to twenty-fold

This "Transportation Triangle" is drawn to illustrate this fact: As the costs of air transportation are reduced, the volume of potential air cargo increases—not in direct proportion but at a much greater rate

AFTER VICTORY looms one certainty: Out of America's war-accelerated research will come new and different airplanes for a world at peace.

Airplanes so advanced as to make obsolete the newest and largest transports in the skies today.

Planes of new, unorthodox design—capable of carrying larger loads longer distances with greater economy in operating costs.

Giant land and seaplanes. "Shuttle" craft for short hauls. Express planes of incredible speed.

In these airplanes America's postwar products and American technicians will have the means to go fast and far to markets anywhere on earth—to unlock the world's commerce—and create new horizons for the better material welfare of us all.

Knowledge U.S. aircraft designers already possess is enough to guarantee this prophecy. For aircraft now on drawing boards can be operated profitably at rates below 15 cents per ton-mile. The rates for air freight before the war were from 80 to 90 cents per ton-mile!

With the coming of victory, Northrop accomplishments, together with those of other U.S. leaders, will contribute to a new world of peace and opportunity. A more desirable world in which to live.

Meanwhile all the resources of Northrop in plane design and plane construction are devoted solely to producing the planes of war. The planes that bring closer the day of complete victory for the Allies.

NORTHROP *Aircraft, Inc.*

NORTHROP FIELD, HAWTHORNE, CALIFORNIA

MEMBER AIRCRAFT WAR PRODUCTION COUNCIL, INC.

Letters

New Hyde Park, N. Y.

To the Editor:

A week ago as captain of a commercial airline flight, I made a forced landing at night with a DC-3 loaded at 25,200 lbs. Only by the grace of God did we avoid making scandalous national history. On one engine we barely maintained flight at a ground speed of 58 miles per hour with full throttle. The single engine operation lasted almost an hour.

During that hour I thought of your editorial of July 15 anent DC-3 load increase, and your nasty remarks regarding '. . . hundreds of telegrams and letters from ALPA members . . . while . . . ironically enough DC-3's are carrying up to 30,000 lbs. in Army operations etc. . . .'

I have flown DC-3's with 30,000 lbs. over the country and the North Atlantic on military missions, and will gladly do it again for military reasons, knowing I have provision and crew for jettisoning cargo to save ship and crew.

Had you been on board that night on Friday the 13th of August you would have eaten that editorial in the presence of all your subscribers or I would have been tempted to use my captain's authority to bodily jettison you without aid of a parachute, because there are none on commercial airlines.

You are either off the beam, or you are stooging for some operator who is looking for diamonds in his gold mine. You would do well to speak as 'The Independent Voice of American Aeronautics' instead of trying to raise someone's quarterly net earnings.

If you will lobby for a trap door to jettison home—loving, rush-weary war workers from ailing aircraft, you may have my permission to up the load to 100,000 lbs. But I know you personally will go back to standing up on trains with five million other air travelers when it is installed.

The airline safety factor is in the procedures and the piloting profession and not in any 'fool proof contraption.' Volume may be increased by adding fifty of the 300 DC-3's stored on the desert, which, haven't turned a prop for thirty days.

J. L. 'DEE' GRAHAM, JR.

P. S. You have my permission and I *dare* you to publish this.

(EDITOR'S NOTE: To Captain Graham goes a modicum of excuses for his jumpy letter for it isn't pleasant to fly a DC-3 with one engine. An independent editorial voice to many people is an editorial voice that only says what they like to hear, which is no independence of thinking at all. To Captain Graham we repeat what we said last issue, the item in question was NOT an editorial, and was NOT advocating anything. And to Captain Graham our thanks for a very frank letter, but also a word of advice: it isn't necessary to cry in alarm about increasing quarterly net earnings every time something happens that is not to the precise liking of airline pilots. We believe we are in sympathy with the pilots and their problems, but pilots aren't the only ones carrying the burdens of the world on their shoulders. Anyway, Captain, let's hope you don't have any more engine failures.)

•

To the Editor:

I note your nice handling in the July 15th issue of *American Aviation* of the lack of transport planes in the industry because of the requisitioning of their equipment by the Army. There is no doubt but that the whole transportation picture would be improved if some of the ships that the government is holding were returned to the air lines as seemingly they very easily could.

Another step that might help the situation would be investigation of the priorities issued to Army men. I fly the air lines considerably on war business and rub shoulders with many of the men who are using the lines, and find a considerable percentage are going on furloughs and pleasure trips and have been able to worm a priority. Others, who are on travel orders, are not on important missions.

Also worth checking into would be many of the private planes which the government has requisitioned only to store in hangars in various parts of the country where they could be used for private owners or in Civil Air Patrol activities.

On the above, please do not quote me. I was really just writing to say that *American Aviation* is still my No. 1 choice for aviation reporting. With best regards, I am

Cordially yours,

DIRECTOR OF ADVERTISING
An Industrial Manufacturer

•

To the Editor:

I would like to extend my appreciation of the fight you are waging on the matter of additional airplanes for the airlines. The airlines have certainly indicated their willingness to contribute in every possible way to help the Army when the need was critical, both in the matter of equipment and personnel. Now that the equipment situation is rapidly nearing a point where the Army has reasonably adequate airplanes to meet its requirements, I think that consideration should be given to re-instating the airlines to their former position.

I think your articles along this line have been excellent.

Regards,

LEO DWERLKOTTE,
Executive Vice President,
Western Air Lines, Inc.

•

Miami, Fla.

To the Editor:

I notice in the "Airline Commentary" Column of the August 15 issue that the firm of Stewart, Smith (Canada) Ltd. has pointed out that airline insurance in Canada covers the insured for that portion of his trip made in the airport limousine. This is also a feature of the trip insurance offered to passengers in this country. It has been since its inception. How long this has been true in Canada I don't know, but it is just possible that we may have "beaten them to the punch."

CHARLES P. KNECHT

(On page 52 of this issue, the Commentary editor admits his mistake, wants to know why the airlines keep this feature of trip insurance a "secret" instead of cashing in on it.—Ed. note).

Obituary

Roscoe Wright

Roscoe Wright, 43 years old, died suddenly August 15, two days after he was reappointed director of information and statistics of the Civil Aeronautics Administration. A pioneer flier, Wright was one of 10 pilots who experimented with the "air coupe," an early family-type airplane model. Professionally, he was a newspaperman and press agent. In 1940, he was in charge of public relations of the Census Bureau. He had previously served as director of information for the WPA for three years. He assumed the CAA position in August, 1940, but was forced to take a leave of absence after one year due to ill health. Last fortnight, doctors told him he was well enough to resume his duties, and he accepted reappointment.

Books

BASIC PRINCIPLES OF WEATHER FORECASTING, by Victor P. Starr. Harper & Brothers, New York. 299 pp.

The author is to be commended for his thorough systematic coordination of upper air charts with the surface weather map. Many useful forecasting suggestions are offered, especially in the preparation of prognostic charts.

Three basic charts are prepared to utilize upper air data to its greatest advantage, namely, the 10,000 ft. chart, Isentropic Chart, and the mean pressure and temperature chart between sea level and 10,000 ft. The use of these charts is exemplified by discussing several past weather situations for which these upper air maps were constructed in conjunction with the synoptic surface map. After discussing these charts in their relation to each other and to future weather charts, both a prognostic surface and 10,000 ft. chart are prepared for a time 36 hours subsequent. The actual maps for which the prognosis was made are included and generally verify the forecast (as we would expect).

Although Mr. Starr logically advocates the usage of all three charts mentioned above, many forecasting units have neither the time nor the staff to prepare them. Thus the 10,000 ft. chart has become by far the most widely used by professional forecasters and to some extent has taken the place of the isentropic Chart. One may use the 10,000 ft. chart *qualitatively* to get a picture of the configuration of the equal potential temperature surfaces; if the moisture data is included on the 10,000 ft. level, as it usually is, then it is simple to use this chart in the same manner as we would an Isentropic Chart for forecasting. Of course, in theory, the Isentropic Chart should be able to be used quantitatively for forecasting cloud formations and precipitation from "overrunning." But, in practice, attempts to do so have not been spectacularly successful—probably due to inaccuracies in the upper air moisture data.

Most airline meteorologists would controvert the author's assertion that forecasts for periods less than 36 hours merely involve the extrapolation of existing features of the weather situation. Airline operations are intensely interested in the weather changes which will occur in the next 12 hours or so. The detailed forecasts required cannot be made by mere extrapolation as evidenced by the sudden developments of a prefrontal squall line or marked changes in the surface pressure field occurring within a 12 hour period.

R. A. GAGE,
TWA Meteorologist.

WILLOW RUN, by Glendon Swarthout; Thomas Y. Crowell Company, New York, 237 pages.

The author of "Willow Run" set out on his writing career as a reporter in Latin American countries to weeklies in Michigan cities but the war brought him back to the United States and to the writing of his first novel. In order to obtain realistic background for writing this story of Henry Ford's great bomber plant he became employed there as a riveter.

The action covers one night shift at the factory, but during that time you have seen a B-24 in the process of development, and have looked in on the hundreds of people responsible for its being made. It gives the reader a fairly good insight into another phase of our present-day American way of life.

DICTIONARY OF SCIENCE AND TECHNOLOGY IN ENGLISH—FRENCH—GERMAN—SPANISH by Maxim Newmark, Ph.D., published by Philosophical Library, Inc., 15 East 40th St., New York, Price $6. 386 pages.

Especially compiled for the technically-minded is this new dictionary of science and technology. Dr. Newmark is a member of the Department of Modern Languages, Brooklyn Technical High School, where his 10 years of experience made it possible for him to write this book as thoroughly and completely as he did.

Beechcrafts at work

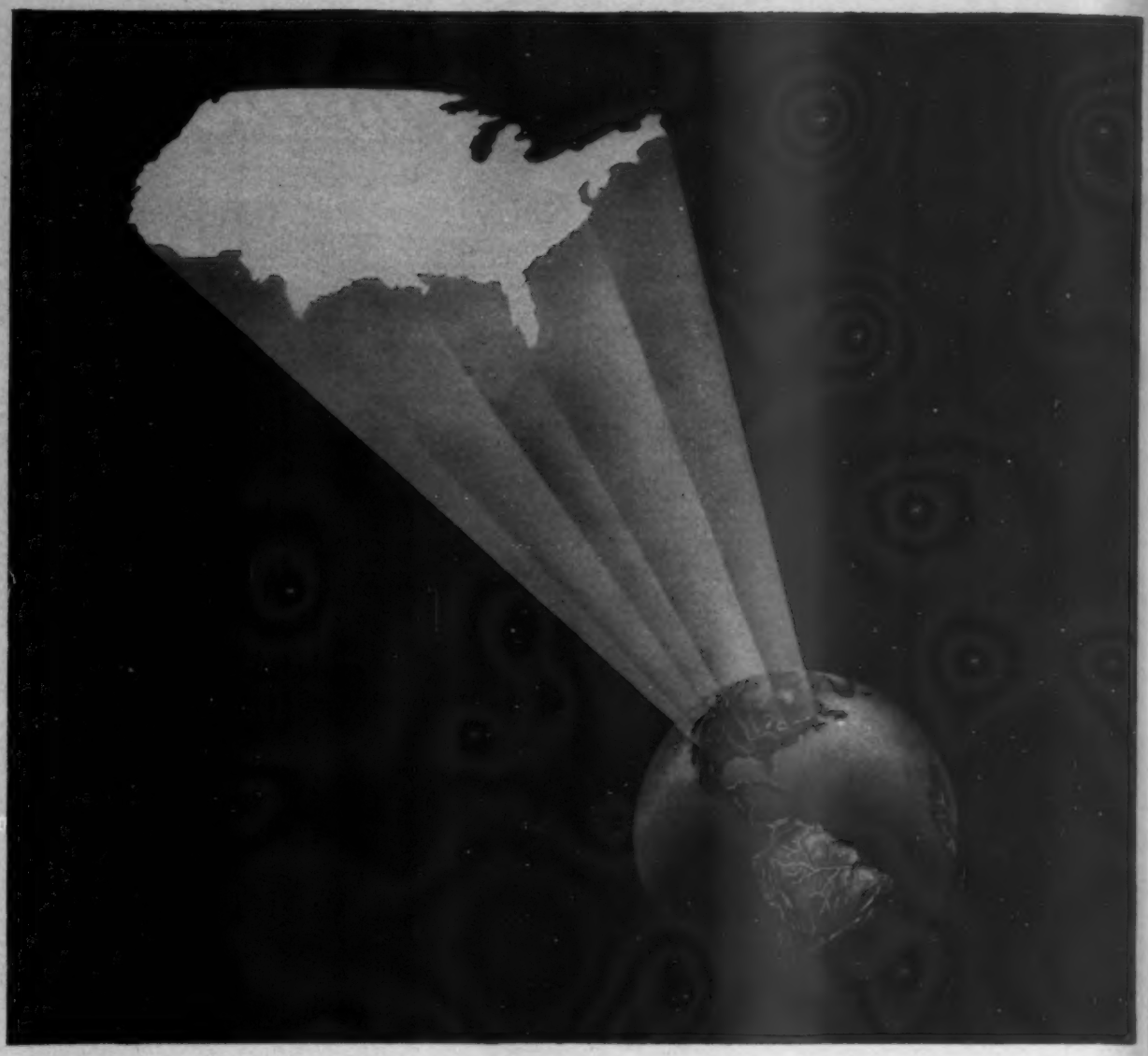
No. 7
OF A SERIES

In the three specialized types of Beechcrafts shown in formation below, a large proportion of Air Forces bomber crews gain the skills that serve them so well in their flights over Axis targets. ★ Pilots learn the technique of handling heavy, fast, multi-engine bombers in the plywood AT-10 Beechcraft transitional trainer (leading formation). ★ Navigators master their complex art in the all-metal AT-7 (Navy SNB-2) Beechcraft navigation trainer (second in formation). ★ Bombardiers learn to make the most of those crucial split seconds over the target in the all-metal AT-11 (Navy SNB-1) Beechcraft bombing trainer (third in formation) which is also adaptable for instruction in flexible aerial gunnery. ★ Like the commercial Beechcrafts which were prototypes of the AT-7 and AT-11, these trainers combine near-tactical high cruising speeds with exceptionally low landing speeds, easy maneuverability, and great sturdiness. ★ Like the men they help to instruct, these Beechcrafts work hard and efficiently at their vital tasks with the world's finest Air Services.

Beech Aircraft

CORPORATION

BEECHCRAFTS ARE DOING THEIR PART — *WICHITA, KANSAS, U. S. A.*



WHAT'S WRONG WITH THIS PICTURE?

AIR is said to extend 21,000 miles from the earth in all directions. That means we "own" an incredible amount of air over continental United States, billions of cubic miles of it.

All of this air is not usable for transportation because planes cannot fly that high. However, select heights at which planes do travel now, and still the airspace over U.S.A. alone exceeds many times the surface area of the entire world, although U.S.A.-air is only about 1.5 per cent of all air.

Physically, air is indivisible and omnipresent. Air is not *divided* into separate shafts over individual nations as in the above illustration. Therefore air does not have boundary lines as nations do. Nature does not discriminate between United States-air and Canadian-air, or Mexican-air, or British-air, or Russian-air.

That is why the use of *omnipresent* air for vehicular traffic creates a totally new problem for *all* of the earth's inhabitants. The new conditions of our air-world, the cancelling of old time-and-distance handicaps, mean that the decisive factor in the peacetime future of the United States is *commercial air power.*

For centuries the status of nations was measured by their leadership upon the earth's *surface.* International air transportation changes that. It compels a new outlook upon life, both domestic and foreign.

There is now pressing need for our nation to *expand* its Airlines to meet the challenge of world-air transportation.

Therefore we believe that the extent to which Americans profit from the use of *world-air* after this war, depends upon how effectively we use the air *over the United States,* first.

ROUTE OF THE FLAGSHIPS UNITING CANADA, U. S. A. AND MEXICO **AMERICAN AIRLINES** *Inc.*

Vol. 7 No. 7
Sept. 1 1943

American Aviation

Net Paid
8,379
This Issue

Manufacturers Call Planning Conference

Aero Chamber's Economic Development Unit Maps Out Industry-Wide Discussion

IMMEDIATE and long-range problems of the aircraft manufacturing industry will undergo comprehensive study at the first conference of the full Economic Development Committee of the Aeronautical Chamber of Commerce of the U. S., scheduled at the Broadmoor Hotel, Colorado Springs, Sept. 20-22.

Broad questions, of both short-range and future importance which the government has invited the industry to work out in cooperation with Federal agencies involved, are scheduled to be discussed.

Scope of the conference is accented by plans under way for leaders of other national aviation organizations to participate, particularly in connection with long-range planning aspects.

The Aeronautical Chamber's Economic Development Committee has reached an important stature in the industry, and now includes representatives named to it by the heads of approximately 80 firms. Other additions are being made to the committee from time to time.

On the tentative agenda for the Colorado Springs conference are such issues as release of engineering facilities for development of projects; development of feeder airlines and their equipment; domestic and foreign trade developments; personal plane manufacture; use and disposition of defense plants and equipment; contract terminations; legislation and administrative regulations; renegotiation and allowance for reserves for reconversion; development of private flying; publication of aeronautical facts and figures, and special statisttical requirements of the industry.

Practically all of the questions involved under these headings have been posed in one form or another by the government, which has repeatedly confessed its inability to provide the answers and has invited the industry to help work out the solutions. Queries on most of these points were thrown out, for instance, by the Civil Aeronautics Board in its celebrated 17 questions last spring. Similarly, Reconstruction Finance Corp. Chairman Jesse Jones in frequent speeches has recited the statistics of government investment in aircraft and allied plants, and has left the question of their future an open challenge to industry, the government—or somebody—to work out.

This is the background in the minds of the manufacturers preparing for the September conference. Immediate and continuing war production is the primary concern, but the industry is keenly conscious that planning on a long-range basis also is necessary. The program of the Colorado Springs conference, when completed, will represent some of the best thought on these questions on an industry-wide basis, it is promised.

Permanent organization of the Chamber's Economic Development Department will be the first thing on the program, with officers to be elected. At present the committee is functioning actively, but on a temporary basis. It has three major "project committees" which are arranging the Colorado Springs program and are known as the Short-range, Long-range, and Statistical Project committees.

Much of the tentative program evolved from a mid-June meeting of the Aero Chamber's Export Committee, which canvassed many of the problems which that committee felt called for immediate discussion.

As plans go forward for revitalization of the Aeronautical Chamber (*American Aviation*, Aug. 1), its Economic Development department is moving ahead with one of the major activities proposed under the new setup. Each member company of the Chamber has been invited to name its own representative on the Economic Development committee which is described as "primarily responsible for work on problems in the planning field."

As of last week, the companies which had made appointments, and their representatives were:

Aircraft Accessories Corp., Burbank, Cal., Emery F. Johnson, Washington representative; Aeronca Aircraft Corp., Middletown, O., John W. Hogan; Aircooled Motors Corp., Syracuse, N. Y., C. F. B. Roth, general sales manager; American Bosch Corp., Springfield, Mass., George H. Cherry, general representative; Babcock Aircraft Corp., DeLand, Fla., V. C. Babcock, vice Pres., chief engineer; Bell Aircraft Corp., Buffalo, N. Y., Frederick R. Neely, Washington representative; Beech Aircraft Corp., Wichita, Kan., John P. Gaty, Vice-pres., general manager; Brewster Aeronautical Corp., Long Island City, N. Y., Zeus Soucek, vice president in charge contract administration; Bellanca Aircraft Corp., New Castle, Del., Harlan L. Thompson, assistant secretary.

Boeing Aircraft Co., Seattle, Wash., James P. Murray, vice president and Washington representative; B. F. Goodrich, Akron, O., F. T. Marshall, Washington representative; Bendix Aviation Corp., New York City, L. A. Hyland, Assistant to Vice-Pres., Engineering; Cessna Aircraft Corp., Wichita, Kan., Don Flower, sales manager; Culver Aircraft Corp., Wichita, Kan., T. Bowring Woodbury, general manager; Curtiss Wright Corp., New York City, J. C. Willson, member board of directors; Continental Motors Corp., Detroit, Mich., A. Wild, Vice President and manager Aircraft Division; Consolidated-Vultee Aircraft Corp., San Diego, Cal., Edgar N. Gott, Assistant to President.

Commonwealth Aircraft, Inc., Kansas City, Mo., Charles H. Dolan, II, president, general manager; Crown Fastener Division, Spool Cot-

(Turn to page 78)

Australian Airline Official Visits U. S.

Reginald Myles Ansett (right), president of Ansett Airways of Australia, is shown visiting with Kenneth J. Boedecker, sales engineer of Wright Aeronautical Corp., during a recent visit to a New Jersey plant of the Wright corporation.

Federal-State Airport Plan Proposed

Stanton Suggests Highway Program As Possible Model

A FAR-REACHING plan under which the federal government and the state governments would become partners in building the nation's postwar civil airport system in accord with principles worked out "and efficiently operating in building our federal highway system" was suggested by CAA Administrator Charles I. Stanton at the Midwest Global Air Conference in St. Paul on Aug. 20.

Asserting that there has "long been need of a clarification of the relationship between the federal and state governments with respect to aviation," Stanton said that one beneficial result of the plan would be "decentralization of federal operations and delegation of more responsibility to state aviation agencies."

If the President and Congress authorize a federal-aid airport program, the funds appropriated would be apportioned to the states by the CAA upon the basis of some accepted formula, Stanton explained.

"Such a formula, we believe, should take account of four factors: (1) the area of the state, (2) its population, (3) number of registered aircraft in the state, and (4) the existing number of accredited airports. Under the plan, as in the federal highway system, each state would have to match a specified percentage of its proportion of the federal funds."

Airport improvements or construction projects within each state would be selected and carried out by the state's aviation agency, the Administrator said. Only sites included within the CAA National Airport Plan would be eligible for federal aid, and CAA standards of location, layout, and construction would have to be met for the class of airport proposed.

"The field of airport development offers a splendid chance for the federal government to prove its good-will by establishing a policy which for more than 20 years has proved its practicability in the field of highways. Federal airport authorities would retain control of national planning and of minimum standards, just as federal highway authorities have done. Yet local problems would be decided at the state level where such decisions should be made. And the earnestness with which local officials advocated a specific project would have to be demonstrated by the dollars they put up to match federal funds.

"It may be contended that federal aid should be extended only to airports having at least interstate significance. But the very nature of the airplane makes even the smallest airport a base for interstate operations. Moreover, the experience of Public Roads officials with federal highway aid provides a valuable lesson. At the outset, federal highway aid was limited largely to trunk routes. But local and feeder traffic has become such an important factor in the whole highway picture that there is steadily growing demand for federal aid in the cities and on feeder roads.

"There should be no straitjacket on federal airport aid. It should be kept as fluid as possible.

"We are not yet ready to suggest the tentative formula upon which the allotments to states should be based. But we have progressed sufficiently in our research on the subject to be confident that we can put forward an equitable and satisfactory prescription."

Before the war, CAA at the direction of Congress made a nationwide airport survey and developed a tentative plan for a network of 4,000 airports, Stanton said, adding that the war caused many shifts in the plan.

"To date, approximately $400,000,000 has been appropriated by the Congress for the National Defense Airport Development Program, which is limited to the development and improvement of sites designated as essential to the war effort and approved by the Secretaries of War, Navy and Commerce. All of this appropriation is now either expended or specifically allocated.

"At the present time, there are almost 3,000 classified airports in the country—1,000 short of the pre-war plan. Altogether, these airports could probably handle 300,000 airplanes, but an immense amount of construction would be required for facilities for housing and servicing. Recent development has necessarily been concentrated largely upon the larger fields. As a result, there has been an elevenfold increase in the number of our major civil airports—with paved runways at least 3,500 ft. long and capable of handling the large transport craft. Whereas we had only 76 such fields two years ago, we shall have 865 by the end of the year. Nor does this number include many large airdromes built solely for military use by the armed forces.

"The situation in regard to smaller airports is this. We have 1,213 Class I airports, the lowest category, which are those having unpaved runways 1,800-2,500 feet long. We have 905 Class II ports, each with paved runways from 2,500 to 3,500 feet long. These are situated, for the most part, near smaller cities and larger towns. In my opinion we shall have to have many more of this class if flying is to become general. Nor can it be said that we have anywhere enough larger ports, for those in many of our major cities are already overcrowded . . .

Atlanta Journal

A Look Into the Future

"After the war civil aviation will be of three distinct types—(1) scheduled airline transport, (2) itinerant commercial transport of goods and passengers by chartered planes, etc., and (3) private flying for business or pleasure purposes.

"Airline trunk routes, it now appears, will directly serve about 1,000 communities in the country. Each of these communities will require one or more major airports. Local or feeder transport lines will radiate from these points to smaller airports within each major city's sphere of influence.

"In addition to this transport network, there must be thousands of inexpensive fields to serve those who fly their own planes. Each larger town will need one or more such airports spotted around its perimeter. These will serve the hundreds of thousands who will fly their own rented aircraft. As in the case of the automotive industry, production of the private owner type of plane must greatly outweigh the production of commercial types if the aviation industry is to prosper.

"Since about 3,000 of the sites in the Federal Airport System are primarily local in their significance, it is our view that State agencies can wisely determine which locations should first be improved, and when. And since a tributary wheel of 'feeder' airports is useless without an adequate trunk airport at its hub, we are even willing to entrust the order-of-priority on major airports to State agencies."

Stanton predicted that the greatest boom in the postwar period is going to come in the field of private flying for business or pleasure purposes. "This has to be if aviation is going to do for our economy after this war something of what the automobile did after the last war. I, for one, do not hope to see aviation production continue at war-time rates. We cannot expect the plants to continue at forced draft for 24 hours a day. Thanks to someone, a substantial portion of our present production is coming out of automobile, furniture, refrigerator, piano—even pickle—factories. And we should devoutly hope they will go back to more and better pianos and pickles after the war. Surely there will be shortages in these and many other commodities crying for fulfilment. Bear in mind that commercial vehicles—trucks, busses, ambulances, hearses—constituted only about 20 per cent of our automotive output in normal times. We must create a similar situation in our aviation business. Cargo and passenger airliners will never keep our net aviation production potential busy and healthy.

"The family plane of the future is not very far away. Manufacturers now assure us—and we can accept their assurances, I think—that after the war we shall have small, safe, and inexpensive private planes costing no more to buy and operate than a medium-priced car. The most revolutionary development in

(Turn to page 28)

Government Seeks Solution To Critical Manpower Issue

Considers Shifting Other Contracts From Air Centers

WAR Production Board, Army and Navy officials last week were beginning a series of conferences in Washington in an effort to work out a permanent solution to the critical problem of providing manpower for aircraft plants in the light of first hand information gathered by government officials during a tour of West Coast plants.

Among the recommendations being considered, the most far-reaching involved an evaluation of the need for other types of war contracts in the aircraft centers and the possibility of diverting all manpower in the aircraft centers to plane production.

Reduction of military draft-quotas in the aircraft centers to a minimum appeared to be one of the most likely steps. Drastic tightening of quit slip requirements and rigid inspection of all U. S. Employment Service certificates was urged. War Manpower Commission also was considering assigning more representatives to the West Coast area to work directly with the producers.

War contract surveys were started in the Los Angeles, Cal., and Hartford-New Britain, Conn., areas to prevent manpower shortages from interfering with production schedules, the War Dept. revealed. WMC said manpower shortages exist in all types of labor in the two areas and they were classified as sections where the placing of new contracts is to be avoided. It was admitted that the manpower crisis is spreading rapidly to eastern aircraft plants, but the War Dept. asserted the surveys were not to be construed as directives for terminating contracts at this time.

During his West Coast trip, Charles E. Wilson, director of WPB's Aircraft Production Board, announced plans for coordinated meetings of all interested agencies in Washington. He said the aircraft program must be met and there is no "or else about it." WPB's goal was 16% more planes in August than were scheduled in July, he said.

First organizational step within WPB to meet the crisis was resurrection of the National Labor Requirements Committee which has been dormant since the days of Ferdinand Eberstadt. The committee met on Aug. 23 and further sessions are scheduled next week.

Attending the Requirements Committee's initial conference, although not necessarily representing the final setup of the group, were: Clinton Golden, WPB labor vice chairman who is scheduled to head the Requirements group; Lawrence Appley and William Haber, representing WMC; G. H. Dorr, special assistant to the Secretary of War; Capt. Paul H. Rice, industrial manpower representative of the Navy Dept.; F. H. Van Riper, executive assistant to production director of Maritime Commission; Bruce K. Brown, office of Petroleum Administrator for War; T. P. Wright, director of Aircraft Resources Control Office; Charles Kohlhepp, office of WPB's program vice chairman; John H. Martin, office of WPB's operations vice chairman; C. S. Williams, civilian requirements; Morehead Patterson, office of rubber director; Edward Faulk, Office of War Utilities.

WPB was asked by War Manpower Commission to revive this committee to determine where labor is needed most. Wilson conducted the first conference.

During his West Coast tour, Wilson said he did not anticipate any difficulty with Selective Service when the needs of aircraft production are made clear. "This will be accomplished," he said, "when the Army, Navy, WPB, WMC and Selective Service sit down to coordinate a program."

Unreliable Radio

Bane of all aircraft manufacturers is the manhandling their airplanes get over the air. The master of ceremonies of the Admiral Radio broadcast (coast-to-coast) on Aug. 22 interviewed women workers at Douglas Aircraft in Los Angeles and referred in glowing terms to the marvelous accomplishments of the "Douglas P-51 Mustang." North American's prexy "Dutch" Kindelberger must have spluttered and fumed plenty over that one.

LaMotte T. Cohu, chairman of the board of Northrop Aircraft, Inc., and president of the Aircraft War Production Council, told the government officials that Southern California is now short 20,000 workers in aircraft plants to meet existing schedules. "The material problem is clearing up and we're beginning to see our way out, but turnover and absenteeism are something else. We are testing every possible answer—even trying two 10-hour shifts, five days a week, with Saturdays and Sundays off."

Just prior to the West Coast inspection tour, the Costello congressional com-

(Turn to page 80)

Study West Coast Manpower Problems

Among the officials who recently toured West Coast aircraft plants and held a series of conferences in an effort to work out manpower problems are those shown above. Seated, left to right: Rear Admiral Ernest M. Pace, Jr., director of the materiel division, Bureau of Aeronautics; Charles E. Wilson, chairman of the Aircraft Production Board; and Brig. Gen. Ben Chidlaw, assistant to Maj. Gen. Oliver P. Echols, chief of the AAF Materiel Command. Standing are LaMotte T. Cohu, chairman of Northrop Aircraft, Inc., and president of the Aircraft War Production Council, and T. P. Wright, director of the Aircraft Resources Control Office.

Demands for Separate Air Force Grow; McCarran Urges Action Now

HIGHLIGHTING the mounting demands for a separate air force during the fortnight was a "take-action-now" petition submitted to the President by Sen. Pat McCarran (D., Nev.).

McCarran, one of aviation's most ardent boosters on Capitol Hill, emphasized that the petition spoke not only for himself, but on behalf of "the best minds in civil and military aviation" and "the majority of the people of the U. S."

Counteracting the separate air force drive was a pronouncement by Secretary of the Navy Frank Knox that he is "unalterably opposed" to such a move, indication that the powers of the Navy are with him. A re-shuffling of the naval aviation organization, reportedly to ward off criticism of the Navy's treatment of its air arm, also has been effected.

Admiral H. E. Yarnell advanced a plan for consolidation of the Army and Navy to stave off the less preferable one "of three separate departments, which loom in the offing at present."

Most separate air force advocates seek a unified command, however, with three co-equal subdivisions: Army, Navy, and Air.

Yarnell outlined in a recent issue of *U. S. Naval Institute Proceedings*, his plan for consolidation of Army and Navy into a Department of War, headed by a civilian cabinet member under whom would be a Chief of Staff controlling two divisions—operations and material. He later publicly qualified that his proposed change should be delayed until after the war.

"It is possible that those now fighting in the field might want a voice in determining what kind of an organization there should be, and they ought to have the opportunity to make their views known when they come home," he said. (Yarnell, retired former commander-in-chief of the U. S. Asiatic fleet, was recently called back to active duty in the office of Admiral Ernest J. King.)

Public statements favoring a unified command with an independent air arm were made by Sen. Carl Hatch (D., N. M.) and Sen. James Murray (D., Mont.)

Reiterating his stand in favor of a unified service command with the Air Forces on an equal footing with land and sea branches, Hatch hoped that this goal could be reached in the near future. He claimed that an air chief having equal rating with the Army and Navy staff heads "would certainly be a step in the right direction."

"I am convinced that all division in the armed forces must be completely eliminated if our military objectives are to be obtained," he said.

Murray reported: "Right from the commencement of this war I was convinced that airpower would be the decisive factor in victory . . . I agree that airpower is 'an independent element of warfare. The demonstration lies in the smoking of Hamburg, in burning Ploesti'. This war will be won in air and airpower deserves a separate setup in Washington."

Following is the full text of the McCarran letter asking the President to give the air forces their autonomy "*now*":

"One of our most important problems today is what to do with our growing air strength; how to control and direct our military aviation so as to unleash its maximum potential force against the enemy while at the same time preserving the necessary cooperation between the air arm and our other armed forces. This is a problem which I know you recognize; one in which you are vitally interested and to which you have given much thought.

"In recent months, achievements of our air force have been so great that I know it must be hard for you to continue to deny those forces the autonomy which they seek and the recognition which they so richly deserve, but you have been hampered by lack of unanimity among your advisers both as to the end to be achieved and the course to be pursued; and serious question has been raised as to how far you, as chief executive, might go in giving this nation an independent and autonomous air force.

"Involved are legal questions, on which I do not presume to advise you. Involved likewise are practical questions concerning aviation and administration, and as to these questions, also, I offer no advice. This is not intended as a letter of advice. It is a call for action. I speak as a citizen whose interest in aviation covers half a lifetime as a Senator who for more than ten years has battled for development of commercial aviation, strengthening of military aviation, and augmentation of this nation's air power; as the co-author of the bill creating the Civil Aeronautics Administration; and as the author and sponsor of a bill, now pending before the Senate, to establish a separate Department of Aviation. I voice my own opinion but I make this petition not only on my own behalf, but in behalf of all those who share that opinion; who include, I most firmly believe, the best minds in civil and military aviation, and a majority of the people of the U. S.

"The petition is this: Take action now which will give us the unified, coordinated, autonomous air force that can make most effective use of the air power with which we must win the war.

"Take action along the lines recommended by the ablest of your advisors, or by a majority of them; take such action as you can and if you deem it not enough ask the Congress to take further action; but take action *now*.

"Every hour we spend winning this war the slow way, when we could be winning it twice as fast, is half-an-hour of defeat."

Aviation Calendar

Sept. 16—CAB Chairman L. Welch Pogue addresses Aeronautic Association of Boston.

Sept. 17-18—Northwest Aviation Planning Council, Wenatchee, Wash.

Sept. 20-22—Aeronautical Chamber of Commerce planning conference, Broadmoor Hotel, Colorado Springs, Colo.

Oct. 18-21—American Welding Society annual meeting, Chicago. (Aircraft Section, Oct. 21.)

Nov. 4-6—Annual meeting, Aero Medical Association, New Orleans, La.

Dec. 2-4—National Aviation Training Association annual convention, St. Louis, Mo.

Aerial Pests

Plenty of minor complaints are reaching the airlines from passengers on the number of flies in plane cabins. Seems to be especially bad this summer and few, if any, stewardesses have fly swatters or any desire to get rid of the pests. The common house fly seems more of a nuisance at high altitudes than at ground levels, invariably buzzing around the windows and driving everybody nuts. The fly nuisance could easily be eradicated by a little swatting providing the flight is of sufficient duration to permit the stewardess to finish the *Saturday Evening Post* serial she's reading on that back jump seat.

Justice Dept. Study of Postwar Aviation Policy Being Pushed

The Interdepartmental Committee on Postwar Aviation Policy is nearing the end of its work on a draft of the "blueprint" for international air operations and has submitted the draft to the Antitrust Division of the Justice Dept. for a study of all legal aspects.

Tom C. Clark, assistant attorney general in charge of the division, revealed that all previous conventions and international agreements will be reviewed and the legal aspects of the various proposals under consideration of the Committee will be examined.

The study is being made under the direct supervision of Arne C. Wiprud, Chief of the Transportation Section of the Antitrust Division. Practically his entire staff has dropped everything else in order to handle the study and make its report to the Interdepartmental Committee sometime in September.

In commenting on the study under way, Clark said he wished to emphasize that it is in no sense concerned with anti-monopoly prosecution, and none is contemplated by the department. It is being made, he added, at the request of Adolph A. Berle, Jr., assistant secretary of state and chairman of the Interdepartmental Committee.

Warner Joins State Dept.

Percy Warner, chief of the Inter-American section of War Training Service, is leaving CAA to join the State Dept. where he will specialize in the Inter-American Aviation training program. This marks the first time the State Dept. has had a man exclusively assigned to this job. Warner joined CAA in 1939. He was formerly with Eastern Air Lines.

Postwar Issues to Be Aired At Feeder-Pickup Hearing

Airlines, Mfrs. and Others to Appear at Important Session

By ERIC BRAMLEY

A HEARING which may last a month and which is expected to be of vital importance in helping to decide the form of the postwar air map, will be opened by an examiner of the Civil Aeronautics Board during the latter part of this month.

The hearing will be in the form of an investigation of the all-important and much-discussed feeder-pickup situation. It will be handled by CAB Examiner William J. Madden, who plans to start proceedings on Sept. 28.

Out of the hearing is expected to come recommendations on the extent to which this type of service should be included in the postwar air service pattern.

There has been more interest in this investigation than in any other CAB proceeding in recent months. American Airlines, Braniff Airways, United Air Lines, Northwest Airlines, TWA, Pennsylvania-Central Airlines, Western Air Lines, Continental Air Lines, Eastern Air Lines and All American Aviation have all informed the Board that they will definitely be present and will submit evidence.

In addition, Chicago & Southern, Colonial, Delta, and National have either submitted data or plan to be present as observers.

The Aeronautical Chamber of Commerce and the aircraft manufacturers are expected to present some of the most important evidence in the case. This may include estimated operating costs on various types of proposed feeder equipment—an important element which must be considered by the examiner and the Board in determining the economics of feeder operations. In addition to the Chamber, which is preparing extensive data for the hearing, it is expected that Douglas Aircraft Co., Consolidated Vultee, and Foote Brothers Gear and Machine Corp. will appear. Curtiss-Wright Corp., McDonnell Aircraft and Northrop Aircraft have also expressed an interest.

Surface carriers will also be heard. Greyhound Corp., with the largest single application on file with the Board (for helicopter service) plans to present testimony. Representatives may be present from the Association of American Railroads, the Illinois Central System and the Chattahoochee Valley Railway Co. (Georgia).

Express companies interested include Railway Express Agency and Universal Air Freight.

Other companies and individuals who will present evidence include: William B. Allen, Washington, D. C.; Automatic Air Mail Inc., Lost Nation, Ia.; Kansas Aviation Co., Kansas City, Mo.; Ong Aircraft Corp., Kansas City; Philadelphia & Eastern Airlines, Lancaster, Pa.; Seaboard Air Transport, Lumberton, N. C.; Southern Air Services, Memphis, Tenn.; Southern Airways, Birmingham, Ala.; Southwest Airways Co., Beverly Hills, Calif.; Southwest Feeder Airlines, through Clinton Hester, attorney, Washington, D. C.; State Airlines, Charlotte, N. C.; Virginia Central Airlines, Lynchburg, Va.; West Coast Airlines, through Clinton Hester, attorney; Century Aviation Co., Wayne, Neb.; Lafayette School of Aeronautics, Lafayette, La.; Page Airways, Rochester, N. Y.; Parks Air College, East St. Louis, Ill.; Wilson-Bonfils Flying School, Chickasha, Okla., and Kentucky-Tennessee Airlines, Lexington, Ky.

Federal and state governmental agencies planning to appear are Civil Aeronautics Administration, Civil Aeronautics Board, Tennessee Bureau of Aeronautics, State of Alabama Aviation Commission and West Virginia Board of Aeronautics.

Other interested persons include A. W. Card, West Palm Beach, Fla.; Steadham Acker, Birmingham airport manager; City of Niagara Falls, N. Y., and Starkville, Miss., Chamber of Commerce.

Because of the large number of persons desiring to appear, Examiner Madden intends to set up an order in which various groups will appear. These will probably be divided as follows: presently operating air carriers, applicants and prospective applicants, manufacturers, federal and state governmental agencies and aeronautical boards and commissions, and other interested persons. No order of appearance has yet been decided on. It has been estimated that the proceeding will last a month, unless the parties have their material in unusually good form for presentation.

Probably no CAB examiner has been faced with a tougher job than that confronting Madden. He will be dealing with a subject on which there is a wide variation of opinion—aviation officials, for example, do not even agree on the exact definition of "feeder."

Madden in all probability must decide—if he finds that feeders are desirable—whether new legislation will be necessary for expansion of the U. S. air system to smaller communities. He must seek data on what a feeder system would cost the government, the effect of such a system upon the existing air service pattern.

His recommendations will give the Board a place from which to start in laying down its philosophy on air service for smaller communities.

New Anti-Ice Device

A strip of rubber, which has been made a conductor of electricity by the addition of chemicals, has been devised by United States Rubber Co. to prevent formation of ice on propeller blades. Passage of electricity warms the rubber and keeps ice from forming. Dr. Louis Marick, company scientist, demonstrates the device in above photo.

Craig Succeeds Giles As Assistant Air Staff Chief

The War Department announced Aug. 13 the appointment of Brig. Gen. Howard A. Craig, former Chief of Staff for the Mediterranean Air Command, as assistant Chief of Air Staff, Operations, Commitments and Requirements of the Army Air Forces. He succeeds Major Gen. Barney M. Giles who was recently assigned as new Chief of the Air Staff.

Gen. Craig's World War II service was under Air Chief Marshal Sir Arthur W. Tedder, Royal Air Force. He left the position of Assistant Chief of Staff, Plans, for overseas service in June, 1942 and returned to this country only recently.

Exporters Claim Postwar Air Transport Will Not Revolutionize Trading

Postwar development of air transportation will *not* revolutionize foreign trading activities, in the opinion of many exporters actually engaged in the field. A survey of its members by the Foreign Credit Interchange Bureau discloses that of 215 members queried, 66% declared their products did not lend themselves to shipment by air, while 90% expect no change in their credit terms to result from the use of air carriers.

Of 215 questionnaires returned on the subject of air cargoes, 35 carried no comment on the question of whether individual export products could be shipped by air. Twelve members indicated a possibility that their products might be so shipped; 23 stated that some of their products might lend themselves to such shipments, and five said small quantities might be shipped in this manner.

British Parliament Members Support Plane-Boat Combine

Claim Shipowners Have Experience for Postwar Operations

By KATHERINE E. JOHNSEN

ARGUMENTS for coalescence of Great Britain's postwar air transport with shipping are persistently and ardently advanced in both Houses of Parliament, while champions of independent development of aviation have maintained silence.

Such authoritative opinion opens the new possibility that American airlines may be pitted, not against another new industry, but against Britain's established and officially-designated "greatest industry": shipping.

"I am glad to think that the shipping industry is quite alive to the idea of aerial fleets", said the Hon. David Adams, self-labelled "an ex-practical shipowner", in the House of Commons a few weeks ago. "We may look to some substantial development in that direction through the enterprise of British shipowners . . . although at present all that is contemplated is that the more costly goods might be carried by air."

Proponents of the many divergent views in Parliament on the postwar set-up of civil aviation evidently are agreed on the one point that aviation should be aligned with shipping. Differences of opinion are only on the degree and type of shipping participation.

Advocated participation ranges from the plea that shippers "be given an opportunity to take their place in the management" of civil aviation; to plans for shipping interests to finance aviation, but not direct it; to the outright proposition that veteran shippers completely "take on" the development of the new mode of transport, by air; to the argument of internationalizationists that shipping and air transport, as well as other forms, be under the unified control of the government, ultimately of a world organization.

Viscount Rothermere, political and press power (proprietor of the London *Daily Mail* and *Evening News*) and supporter of British Overseas Airways Corp. as Britain's postwar instrument, has proposed that shipping interests strengthen BOAC with financial injections.

Although maintaining that private enterprise could not run postwar aviation "on a big enough scale," Rothermere argued that private shipping interests "should be encouraged" to "help" the corporation through financing. This could be arranged through subsidiary corporations, he said.

". . . the control could . . . remain with the parent company (BOAC), but the shipping companies could have perhaps either a financial interest or—if that is considered not to be wise—at any rate some sort of partnership in the formation of air transport after the war", he suggested, and added:

"I understand that shipping companies are prepared to put up large sums of money . . . They are prepared, which is far more important, to put at the disposal of the Government their experience in running what is, after all, the most magnificent service which this country possesses, and a world-wide organization which could be of tremendous help in establishing civil aviation after the war."

Rothermere stopped short of having shipping interests represented on the board of BOAC, a policy endorsed, however, by Lord Reith, another of Britain's proponents of a government-owned "chosen-instrument" for postwar air transport. Reith remarked: "I see nothing inconsistent in this, nor would other noble Lords who recommend that existing forms of transport should be associated with this new form—the Duke of Sutherland for instance, who recommended that civil aviation should be handed over entirely to shipowners."

Lord Milford and Lord Sempill, although both opposed to a BOAC monopoly on air transport, seconded Rothermere and Reith on the desirability of shipping participation in the new aviation field, with Milford going the full way and recommending that the shipowners take over the job and Sempill halting at a half-way point and recommending only that they "collaborate."

"It seems to me that the people who obviously ought to take on this job are the shipowners", Milford proposed. "I am laying myself open to criticism now because I am a shipowner, but only concerned with tramp steamers, and I cannot see aeroplanes affecting 8000-ton cargo vessels, for a good many years to come anyhow. I have no interest in liners at all, so I still think I may consider myself an independent person . . . But it (air transport) is part of the shipowner's business, and the shipowners are going to lose the greater part of their fast traffic because the aeroplane can get to its destination much quicker than anything else. I am afraid they will not be able to carry on unless they are given liberty to run their own aeroplanes, but I do not want them to have any sort of monopoly. They have the experience and the organization and they can raise the capital."

Sempill argued against restricting air transport to one company, suggested several enter the field, divide the territory, and be glued to already-established shipping organizations.

He proposed: "The operation of such (world-wide air) services calls for a wide experience in grappling with the many and varying problems . . . therefore . . . there should be made available opportunities for a number of organizations to concentrate on operating different sections of the services that will stretch out from Great Britain to encircle the globe and thus provide a series of effective empire links . . . Such links could well be forged in full collaboration with existing shipping organizations. They have a wide experience, important territorial contacts in the various countries to be served . . . such collaboration . . . could be a very effective arrangement. The services operated by these different organizations would each be responsible for a part of the general plan and would operate in healthy competition with each other."

Protagonists for shipping controls over commercial aviation in the House of Commons are no less enterprising than those in the Upper Chamber. On the other hand, the only two arguments raised *against* shipping interests enroaching on

(Turn to page 60)

New-Type Nose Turret

An addition to the armament of the Consolidated Vultee Liberator is the Emerson electric turret, shown being installed at the company's Fort Worth, Tex., plant.

British Shippers Ask To Operate Planes

Over a dozen British shipping firms have sought Court sanction to operate aircraft in conjunction with their ships, according to reliable reports from overseas.

Most recent application is by the Silver Line Shipping Co., whose directors have asked "to change the objects clause of the company's memorandum of association to empower them to operate aircraft".

Five Types of Postwar Air Service Predicted by Wolfe

Airlines Will Have Classes of Rates, WAL Official Says

AIR service in the postwar world will be divided into five classes, ranging from high-speed, extra-fare international airlines to private "air cars," Thomas Wolfe, vice president of Western Air Lines, predicted on Aug. 20.

Wolfe

Speaking at the 1942 west coast regional transportation and maintenance meeting of the Society of Automotive Engineers in San Francisco, Wolfe expressed the belief that the airlines will be forced to follow other forms of transportation and adopt classes of rates in keeping with service rendered. According to his predictions, rates charged on the deluxe international lines will be less than those now charged by the domestic airlines.

Wolfe foresaw the following types of postwar equipment and rates:

•International service—extra fare, "deluxe, high speed, high altitude, mail and express, long distance passengers, super equipment, international, interstate." Passengers fares will be 4.3c per passenger mile; express, 20c per ton-mile and deferred express, 15c per ton-mile.

•National service—standard rate, "regional feeders, moderate speeds, older equipment, mail, passenger, express." Passenger fares, 2.8c per passenger-mile; cargo, 15c per ton-mile, and deferred cargo, 10c per ton-mile.

•Cargo service—used planes and specially constructed planes, moderate speeds, low rates. Such service would transport cargo at 10c per ton-mile.

•Contract service—fixed base contractors, industrial carriers, using both single and multi-engined planes. Rates would be variable by contract.

•Air Car—private plane, with costs on the level with those of automobiles.

"It appears that experience of other forms of transportation will eventually be followed by this youthful industry in that economies to both operator and the public will require air transportation to establish classes of rates in keeping with service rendered. There will be airplanes built operating at speeds between 200 and 300 miles per hour which will be considerably more costly. These planes may increase the extra weight provision for passenger comfort from 60 to 90 lbs. per passenger. An extra fee must be charged, and the traffic will bear this charge the same as express does compared with freight, and the Twentieth Century or the Streamliner does, compared to standard service. Also, the equipment which we now have, and which is obsolete, but with plenty of life left, must be kept working. Rates on this equipment should not be on a level with the ultra modern plane."

Wolfe's conclusions on various important subjects were:

Traffic: "There is a vast amount of new traffic awaiting the development and expansion of aviation. Manufacturers, airlines and the government should join hands in an effort to explore, evaluate and prepare in advance for the era of commercial aviation nearly upon us in order that the industry will not have to weather a period of ruinous floundering before new routes are established and commercial equipment is ready."

Costs: "Since commercial utilization of the airplane leans heavily on cost and excellence of transportation, engineering talent should be extensively directed to further reduction in cost and improved operation methods."

Facilities: "Cities and nations should trim their sails for an expansion of forty times present operations. Routes and terminal facilities should be started long in advance of the transition. Commerce and industry must anticipate a conversion to air economy."

Ground Transportation: "In face of a probable 1% ton mile penetration and 3.13% gross revenue diversion, all forms of ground transportation can relax and improve their own transportation without attempting to control or limit air development."

Manufacturing Outlet: "The trend toward larger airplanes will of course, reduce the number of planes needed to handle our domestic tonnage after the war. It is possible to perform the four billion ton mile service in this country with 1836 planes averaging between two and twelve ton capacity. Plane production in 1943 is expected to reach capacity for 638,000 tons of aircraft. The strictly utility type of commercial consumption would only take about four or five per cent of our plants' production capacity, indicating that, aside from military, private and international operation, there is great need to put the maximum number of aircraft in harness after the war."

Pointing out that "ground time sabotages the ability of the plane to a high degree," Wolfe urged that time loss and breakage must be eliminated. "An example of the average air express package on the airways today for a 1,075 mile haul," he said, "ends up something like this; basic cruising speed of the airplane, 187 mph; including scheduled speed of the airplane, 137 mph; including terminal time, handling and servicing, 127 mph, including pickup and delivery—overall time, 63 mph.

"While this final door-to-door speed is improving, the engineer can attack a 51% waste. Included in this is the application of loading and warehouse machinery, trucking, level fuselages, tiedown arrangements and the creation of containers that will save countless time, tare weights and breakage.

"It would not be an exaggeratian to say that packaging for air transportation is still in the 'linen duster' stage. A study of 50,000 shipments involving a million pounds of air cargo indicated that one-third more cargo can be handled by intelligent packaging. Outmoded practices create the following wastes: tare, 18%; time 10%; volume, 5%.

"Close-in terminals with trunk highways to distribution centers, coupled with adequate warehouses and refrigeration, have received too little attention." This subject also embraces hotels, airport beautification and expansion. Only 240 trunkline stops are now served by the airlines, yet there are 3,008 airports (Class I-III), not including new military fields, and some 3,464 cities not yet served by airlines that will demand attention in the terminal problem. Factory landing strips for the contract and industrial flyer create an entirely new problem. In addition, there are over 350,000 miles of new route mileage applications pending before the Civil Aeronautics Board."

While the airplane can be reasonably expected to penetrate existing domestic utility traffic to the extent of nearly 1%, there is a substantial "unborn" traffic which world adjustments, mixed with air transport utility, will bring into existence, Wolfe said. Only extensive research and time will give the answers to this traffic, he pointed out.

Discussing "unborn" traffic, he made the following points:

1. "Our ability to barter, the outcome of peace table conferences, air rights, and military objectives will be the key to the flow of millions of ton-miles—this we cannot now evaluate."

2. "Competition between nations to maintain air supremacy, to reach markets

(Turn to page 41)

Truman Envisions a $100 Plane Engine With 100 hp

Sen. Harry S. Truman (D. Mo.) told the graduating class of Northeast Missouri State Teachers College recently that a 100-pound airplane engine, capable of producing 100 hp, soon would be produced for $100.

"It should be possible with new techniques and new supplies of formerly costly metals to make private airplanes well within the purchasing power of the ordinary citizen," said the chairman of the Senate's Truman committee, which is investigating the war effort. "The day is not far distant when an airplane engine, weighing less than 100 pounds and with 100 horse power, which would be ample for a small private plane, will be produced in mass quantities for $100 each."

Truman pointed out that Igor Sikorsky's first helicopter cost $260,000, "but vastly better ones will be built and sold commercially, within a few short years, for less than $2,000." He told of Henry Kaiser's plans to sell a lightweight automobile with a rear-engine drive, "using the new miracle 100-octane gasoline," for about $400.

"If Kaiser doesn't build this car, it will be built by some aircraft manufacturer," Truman predicted.

Joint International Line Urged By Patterson to Avoid 'Chaos'

"LET US TAKE one company and get behind it. In that way we can satisfy our individual ambitions and create a strong organization under private enterprise to compete against government-operated monopolies."

Thus W. A. Patterson, president of United Air Lines, explained his position on the postwar international airline situation in Los Angeles and San Francisco speeches last month.

At the same time, Patterson reaffirmed that he would not sign the international policy agreement adopted by 16 other airlines unless provision for a jointly owned and operated airline was made, in case "it was found by further study that such cooperative action would serve best the interest of this country in the overseas transportation picture."

Describing the international question as "the most complex problem" facing the industry and expressing regret that he appeared "out-of-step" with the other companies, Patterson proceeded to explain his proposal:

"Let us take North Atlantic travel as an example. Before the war 16% of all U. S. travel was to the boundaries of this country, and 15% of this was across the North Atlantic. Naturally, we all know that the airplane will stimulate travel. It is reasonable to assume that during the first 5 years after the war air travel across this route will increase 10 times.

"Even with this increase, fifty-four 100-passenger airplanes could handle the travel. We would be foolish to assume that only American airlines will be competing for the business and revenue.

"Foreign countries will want landing rights and at least six government-owned carriers from other countries would be in the field. Great Britain and Canada have both announced government companies for overseas operations; Sweden, Holland and France must be considered.

"With wide-open competition among the carriers of this country, a minimum of six U. S. companies would be bucking the competition of six foreign lines. Pan American and American Export are already in the field and it is only reasonable to assume that four transcontinentals would enter.

"The effect would mean economic chaos and heavy subsidy for American companies to survive. And remember when we are subsidized, it means living in Washington from one finance committee meeting to the next.

"We, by our own conduct, can create chaos which leads us direct to government monopoly.

"I think it is time we used statesmanship in business as well as in international relations and politics. Let us take one company and get behind it. In that way we can satisfy our individual ambitions and create a strong organization under private enterprise to compete against government-operated monopolies.

"Summing up, I am interested first in the flag of the United States and keeping it in the lead in world air transportation. Secondly, I am interested in private enterprise and not government-ownership here. The item of least importance is matter of maintaining individual names. There is something we can sacrifice to hold our lead in the international picture. One company, in which we could all participate, would give us the best elements needed in expansion."

Explains Position: In two west coast speeches recently, W. A. Patterson, president of United Air Lines, explained his stand on postwar international operations. He is shown here (center) with G. C. Holly, left, president of the Los Angeles Rotary Club, and G. H. Macomber, UAL district traffic manager in Los Angeles.

In an interview with *American Aviation* following his Los Angeles talk, Patterson elaborated on his proposed joint company. He pointed out that it would apply to trans-ocean operations only, that would apply to all sections of the world and include all companies, large and small, desiring place in the international field. Earlier in his talk ,Patterson deplored fantastic ideas developing about aviation. He urged the industry to retain stability in the future which took 15 years to accomplish, and not be guided by emotions and romance.

"Everybody is flying oceans and running around in helicopters. In Chicago they are talkig about helicopter landing spaces. I would suggest they keep their bomb shelters. That's where I'd want to be if immediately after the war helicopters by the thousands were soaring over the city, seeking to land on office roofs." The industry can look forward to good, healthy, scound development that will enable aviation to maintain the stability that is important to every community, is Patterson's contention. "Viewed as a market problem, which it really is, our business in the future can logically anticipate an eventual 80% of first-class passenger travel in this country for a distance of over 300 miles. But then, we must reduce our rates from 25 to 35%. And 80% of the first-class mail traveling over 400 miles will require a reduction of cost to the public by 50%. The same is true of parcel post. But express and cargo is another problem. There should be available to us 40% of railway express business but the economic factor is difficult, for we would have to reduce our rates by 500%. Development of these markets might take from 10 to 20 years, and what I have suggested as practicable would represent a growth 30 times prewar volume. Railroads and ships would still be carrying the bulk of the freight business. The airplane is going to generate more business for surface carriers. And I might add the surface carriers should give more thought to new business we will generate for them instead of bemoaning the little we will take from them."

New U. S. Chamber of Commerce Committee Studies World Routes

The United States Chamber of Commerce announced last week the formation of a special committee to study problems incident to converting the nation's world-wide wartime transport networks into permanent systems. The committee would render "real assistance to the administrative branches of the government which supervise transport, and to Congress, which has the all-important task of finally approving the national policies to be adopted," said the chamber's announcement.

It further stated: "To serve war necessities we now have a far-flung system of international air services reaching to virtually every part of the non-Axis world. Many thousands of war-built cargo planes and transports are engaged in these services.

"We have also constructed a great number of air bases, partly on the soil of other nations. What is to be done with all these? And under what conditions is international air transport to operate?

"Adequate communications by sea and air with all parts of the world will in the future be more than ever essential to our national well-being.

"Anyone who has used our airlines, which span the continent in all directions, or who has seen what air transportation has accomplished in connecting up the countries of the Americas will readily agree as to the great future that lies before world-wide aviation.

"The United States, with its technical and other resources, measured by our production of more than 100,000 planes a year, will naturally take a leading part in its development.

"It is of course essential that what we do shall be consistent with the rights and interests of other countries, but we do want to have our proper part in international transport.

"From a broader viewpoint, I feel it to be of primary importance that the policies adopted in this very significant field be such as will promote the fullest development of competitive enterprise within and among all peoples.

"Free flow and progressive development of international transport by whatever means will be a most potent factor in its development."

Among those named on the committee are:

John C. Cooper, vice president, Pan American Airways; Ralph S. Damon, vice president and general manager, American Air Lines; John E. Slater, executive vice president, American Export Air Lines; J. A. B. Smith, vice president, Curtiss-Wright Corp.; P. G. Johnson, president, Boeing Aircraft Co.; W. A. Patterson, president, United Air Lines; and S. J. Solomon, president, Northeast Airlines.

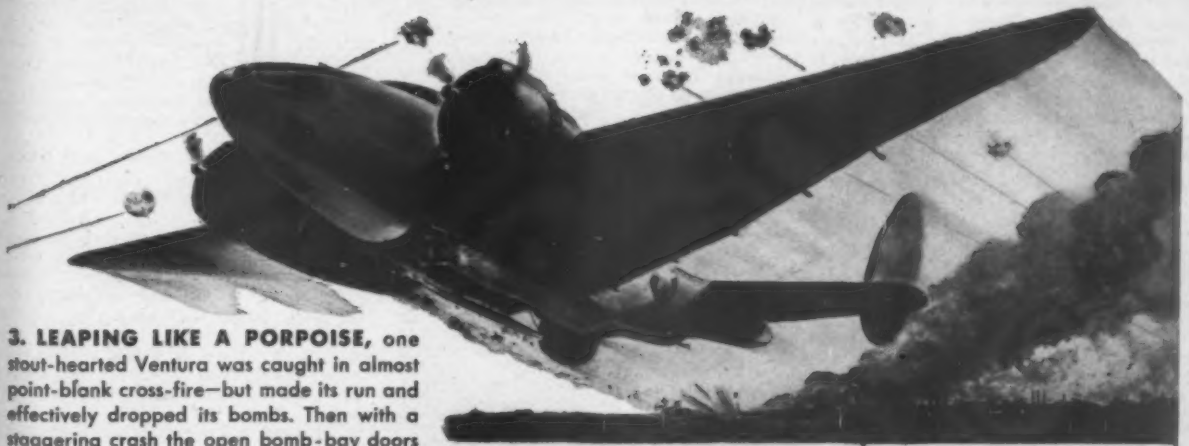
HOLLAND EARTH FOR A HOMESICK DUTCHMAN

How a Vega Ventura Bomber Brought Home Dirt from the Land it Raided!

A handful of Holland earth, scraped from the bomb-bay doors of a returned Ventura medium bomber—back victorious from a smashing raid on Axis-held Europe—tells an exciting, true story of the dependability of one fighting American warplane.

1. VEGA VENTURA medium bombers were chosen for a smashing role in the big daylight raid on the Philips Wireless Works in Eindhoven, Holland. Last to go over the target, their job was to drop incendiaries from roof-top heights on factory buildings already damaged by high-explosive bombs dropped by other aircraft earlier in the raid.

2. AT TREE TOP LEVEL they swept in—lower even than the "flak towers" built to protect this vital Nazi supply center. The defensive gunfire was heavy, and many a crewman saw the interior of his Ventura clearly lighted by licking tongues of flame from burning buildings or by exploding shells.



3. LEAPING LIKE A PORPOISE, one stout-hearted Ventura was caught in almost point-blank cross-fire—but made its run and effectively dropped its bombs. Then with a staggering crash the open bomb-bay doors scraped the ground!

4. A BREATHTAKING MOMENT—Then with a surge of its two powerful engines, the Ventura fought its way up into the air again, away from danger, and across the channel to its home base in England.

5. CAKED IN THE CHINKS of its battered bomb-bay doors was a present for a homesick Hollander. It was Dutch soil—scooped from the Netherlands and brought back by the Vega Ventura—an American bomber tough enough to take a direct hit, bounce off the ground, and still fly its crew home safely.

This is another in a series of stories about Lockheed and Vega and their accomplishments. Watch the pages of this magazine for another true aviation adventure.

Vega

AIRCRAFT CORPORATION

A Subsidiary of Lockheed Aircraft Corp.
Burbank, California

Gov't Corporation Suggested For Postwar Policy Matters

Unified Policy Needed for Global Expansion, Parrish Tells Meeting

THE formation of a government corporation whose main purpose would be regulation and policy but which would be prohibited from owning or operating airlines, may be the method by which the U. S. can present a unified front in postwar international aviation, Wayne W. Parrish, editor and publisher of *American Aviation* and *American Aviation Daily*, told the Midwest Global Air Conference in St. Paul on Aug. 20.

This marked the first time that the idea of a policy-making but non-operating government body had been advanced.

A unified front and a unified policy will be needed by the U. S. in the postwar period, Parrish emphasized. "I don't believe this means that we have to let the government into financing or operations," he added. "I don't believe this necessitates a monopoly.

"But if we are to face the world in competition we must have a *single* policy and those who are advocating a single U. S. airline internationally may be confusing the issue. It isn't necessarily a single company that we need so much as the need for a single policy. And it seems to me that a government corporation established by Congress might well be the answer to a unified policy providing this corporation is prohibited from owning or operating airlines. Its main purpose would be regulation and policy."

Parrish said that at the present time there are three schools of thought among the American flagship airlines as to what should be done in the international field.

"Pan American Airways which is now the largest airline system in the world, wants to be the sole U. S. foreign airline. Having pioneered the foreign routes years ago, it believes it is eminently qualified to represent exclusively the U. S. in world competition and no one denies that it is an able contender for this position. Certainly whatever happens Pan American is entitled to an important share of our foreign routes. To date there is only one other U. S. foreign airline, American Export Airlines, although our domestic airlines, including Northwest, are flying to all parts of the world for the Army and doing an extraordinarily fine job. No one questions today the ability of any of the larger domestic lines to fly anywhere in the world.

"Then we have the 16 domestic airlines that signed a declaration recently calling for free and open competition. In a sense this plan would expand our present method of regulating airlines domestically into the foreign field. These airlines want to compete on a *transportation* basis with foreign airlines and believe they can do more for aviation and the U. S. this way than any other. Their ambitions and desires are natural and typify the best in American private enterprise. Their plan can perhaps be called the traditional American way.

"A few weeks ago a third school of thought appeared when W. A. Patterson, president of United Air Lines, advocated a pooling of all U. S. airlines into one joint company. In other words, Mr. Patterson believes we should have a unified front and a unified policy using the best techniques and brains of our entire industry. He fears that if individual American airlines compete with foreign government-controlled or owned airlines, we will come out on the small end. He believes open competition will be disastrous.

"Now those three schools of thought are not easy to compromise, and we have not yet considered the ambitious steamship companies and others who want to get into the field.

"The British will probably have more than one company. They might have as many as half a dozen, but these companies will be serving different parts of the world and regardless of the number of companies, it is important to remember the British will always have one dominant unified policy. They are old hands at internationalism and world trading. . . .

"As for a jointly-owned and operated company, this is theoretically at any rate a fair idea provided that this company was broken down into independent operating segments such as an Atlantic and a Pacific division to provide the measure of technological competition needed to develop our aircraft industry. But this idea is very difficult of attainment. Typical of Americans, each company wants to go out on its own independently. To get them all together into a joint cooperative company would be most difficult.

"Nonetheless we don't want ruinous competition, for the net result would very likely be government ownership or control.

"In summary on the international question, don't expect an easy or an early solution to the problems. It is one thing to plot an airline to a foreign country and quite another to get landing rights on a favorable basis. And if we want to fly direct to Paris, will we have to let the French fly direct to Chicago? Or if we tell the French they will have to fly only to Boston, will we be happy to fly only to Cherbourg or some similar place on the Coast?

"A glance at a globe shows who has the advantages of airspace after the war. Great Britain is in a good bargaining position because of its many islands, possessions and dominions. Russia, however, has the most important airspace in the world if the airplane is to use the shortest routes from one part of the globe to another. And Canada on our north sits astride our short-cuts to Europe and Asia. We in this country have two advantages but only one of these, the Hawaiian Islands, is a vital geographical point for landing rights. The other advantage is that we are the greatest travelers and will provide a very large share of the world's air traffic. . . .

Mr. Twa Wants TWA Job

Transcontinental & Western Air, Inc., reports that Sgt. A. J. Twa, an accountant with the Royal Canadian Air Force, has written the company that "for reasons more serious than mere alphabetical coincidence, I would like to work for TWA after the war." The letter thanked the firm "for keeping my name in the public eye."

Four 'WRENS' and One 'Seagull'

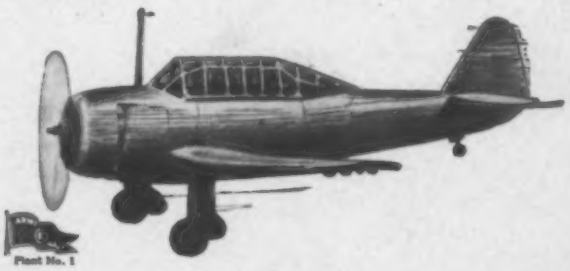
An American-built lend lease airplane, the Curtiss "Seagull," is shown being checked at Roosevelt Field, N. Y., by four British WRENS, who have the important job of making a case history of each aircraft type delivered by the United States to Great Britain.

TAKE AWAY AIRPOWER!

TAKE away airpower, and the job of winning the war becomes terrifying in its immensity. Our strategy of fluidity, surprise, and preparatory softening would stagnate to one of position with military advances measured in feet instead of hundreds of miles. Everywhere on the globe, footholds in enemy territory would be gained only at calamitous loss of life.

Is it any wonder that America's eyes are turned skyward? Isn't it natural for us to depend on aviation to bring an earlier end to the war, and to assure the continuance of peace by making neighborliness the keynote of worldwide diplomacy? Airpower, a faint shadow over the world in 1918 has become the very substance of our hope today. It is the part of Fleetwings to vitalize that hope with its contribution of planes and plane parts.

Fleetwings-made wings, fins, stabilizers, ailerons, flaps, and hydraulic valves for America's fastest and best aircraft flow from the production lines in a floodtide . . . every part a promise of a better future—each piece an omen of our nation's permanent airmindedness. Fleetwings, like all industry, is in it for victory, but Fleetwings is in it too—for a sound and continuing peace.



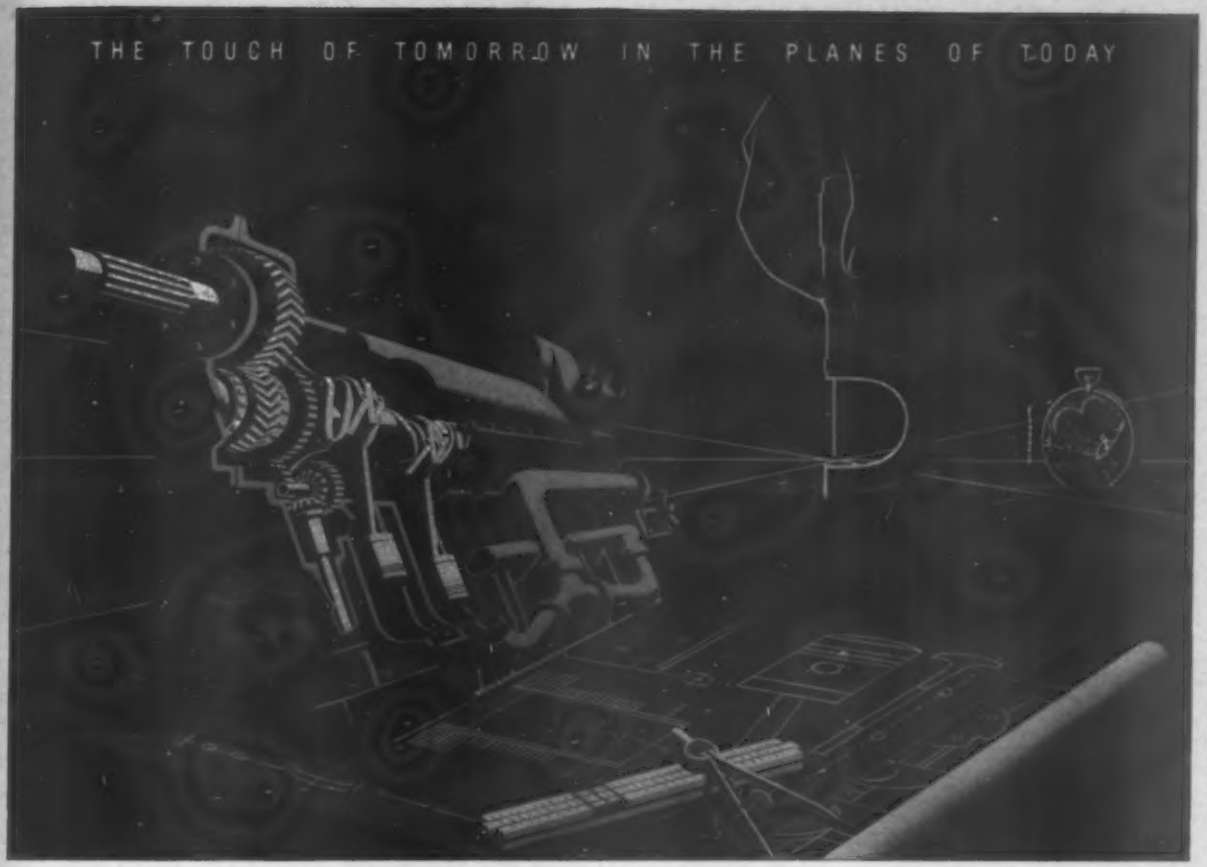
Plant No. 1

FLEETWINGS

TWA now provides direct airline service between Washington, D. C., and more than a score of major war production and military centers on The Transcontinental Airline. Inauguration of the new service follows a Civil Aeronautics Board decision extending TWA's route from Dayton to Washington by way of Columbus and Wheeling.

New TWA schedules help expedite urgent travel and shipping between the Nation's capital and San Francisco, Los Angeles, Kansas City, St. Louis, Chicago, Indianapolis, Dayton, Columbus and other key cities. At present TWA operates two flights daily to and from Washington, and plans are being made to augment these schedules in the future as fully as conditions will permit.

The TWA TRANSCONTINENTAL Airline



How Precise is Precision?

Maybe *your* yardstick is a fine watch. *Ours* is a Ranger 12-cylinder in-line, air-cooled engine. See the comparisons between the two listed below.

A whole battery of fine laboratory instruments, plus the genius of craftsmanship, are responsible for the Ranger's outstanding precision performance.

There's the spectroscope, for example—so sensitive it can spot a particle of metal as minute as seven parts in a hundred thousand. Fairchild uses it to explore and to control the metals in Ranger engines.

A quarter million volt X-Ray is another Fairchild key to secrets that are hidden beneath 4 inches of solid steel. It tells our engineers which metals can "take it."

Under a metallurgical microscope our technicians can read the history of any metal . . . tell how it was processed during manufacture.

With electrical instruments they can detect a flaw one ten-thousandth of an inch in depth that *could* become a bottomless pit of danger.

A beam of black light is played over machined surfaces to expose the structural "criminals" that may lurk within.

These and hundreds of other present-day miracles are routine matters for Ranger engineers and scientists. Result—the Ranger Engine...combination of precision and power . . . another Fairchild "touch of tomorrow in the planes of today."

A QUALITY WATCH	A RANGER ENGINE
PARTS—about 350.	PARTS—exactly 4,127
PRECISION measurements—wheel pivot held to a tolerance of 1/2 of 1 per cent of its diameter.	PRECISION measurements—impeller shaft held to a tolerance of 1/10 of 1 per cent of its diameter.
SPEED of moving parts—balance wheel oscillates 5 times per second.	SPEED of moving parts—fastest part revolves 520 times per second.

BUY U. S. WAR BONDS AND STAMPS

RANGER AIRCRAFT ENGINES

Division of Fairchild Engine and Airplane Corporation · Farmingdale, Long Island

CAA Revises Airport Plans; Studies Needs of Next 6 Years

Donaldson Predicts 5,000 - Ft. Runways Adequate for Future

THE Airport Section of the Civil Aeronautics Administration is now revising its nationwide airport program to encompass the anticipated airport needs of aviation in the United States for the next six years.

The plans represent a sharp revision upward in the number and size of airports mapped out in the original CAA development program conceived in 1939 in order to bring it "back in line" with the changes which have occurred in the outlook for aviation in the postwar period.

Four significant factors mark this revision, as outlined by Charles B. Donaldson, director of Airport Services of CAA:

1. The Class 4 airport, with 5,000-foot runways corrected for altitude, will be adequate for future air transport operations.

2. Segregation of the different kinds of air traffic will be necessary in the larger metropolitan areas, with one or more air terminals being used exclusively for the regular air transport type of operation.

3. Anticipated expansion in private flying will call for many more small airports than ever before anticipated.

4. Accessibility of the airport to the city must be measured in terms of transportation time, rather than in miles.

The new nationwide airport "blueprint" will be completed by CAA sometime this fall and submitted to its seven field offices, where it will be studied and referred to the various regional and state planning groups for comment and suggestion. By the first of the year it is anticipated that the plan will be shaped up as representative of the best ideas on the subject by the states and the federal government.

The CAA will then be in a position to recommend to Congress the development of individual units within the overall plan from year to year as needs arise. With this plan as the background, Congress will be asked to determine the policy of the Federal government in participating in airport development in the postwar period.

The 1939 plan contemplated construction of only 48 Class 4 airports in the U. S. during the ensuing decade, but it was outmoded so swiftly by aviation developments that the current construction program involves approximately 250 Class 4 or better airports, which will bring the total number in this category to approximately 600 by the end of the year. These include many built by the Army and Navy which will revert to civil use after the war.

Discussing the proposed new program before the Midwest Global Air Conference in St. Paul, Minn., last fortnight, Donaldson emphasized conclusions reached by CAA with regard to length of runways.

"There appears to be some apprehension," he said, "that airports of the Class 4 size, with runways of 5,000 feet, will be inadequate for the large air transports predicted for the future, with the result that many city planning groups are talking in terms of 8,000 and 10,000-foot runway lengths, and in some cases longer.

"The performance of aircraft used in regular air transport operations in the U. S. is controlled by the Civil Air Regulations promulgated by the Civil Aeronautics Board. These regulations require that all such aircraft meet certain minimum performance requirements as to landing and takeoff runs and rates of climb. The aircraft which will comply can be safely operated out of a Class 4 airport. Our aircraft engineering branch advises that there is little likelihood that these regulations will be relaxed since such aircraft, if they are designed so that they require excessive runway lengths, will have other flight characteristics so adverse as to make their use in this type of service unpermissible. The present outlook, therefore, is that airports in the Class 4 category will adequately serve our future air transport operations so far as can be foreseen."

Donaldson suggested that only a few key airports along the U. S. coasts and at strategic points in the coast-to-coast air transport system, used for the takeoff of aircraft heavily loaded with gasoline for long flights, would need to be larger.

Donaldson's formula for airport planners follows:

"For small communities not on present or proposed air transport or feeder lines, with a population approximating 5,000 people, it would appear that a Class 1 airport with landing strips of 1,800 to 2,500 feet should prove adequate.

"In the larger communities, which are located on present or possible future air transport or feeder lines, with populations up to 25,000, a Class 2 airport with runways 2,500 to 3,500 feet should be adequate.

"For the medium sized cities, which are located on the present or proposed air transport system, a Class 3 airport is recommended with runways 3,500 to 4,500 feet long.

"At many of these cities auxiliary airports of the smaller class for private flying would be desirable. The major industrial and metropolitan centers of the nation will require at least one main air terminal and several smaller airports to accommodate non-scheduled operations and the local private flying groups."

All airport sites, he added, should be adaptable to expansion if future development of aviation requires.

Jones School Wins Award

Casey Jones School of Aeronautics, of Newark, N. J. has been awarded the Army Efficiency Banner as the most efficient Civilian Mechanics course in the 1st district, Army Air Forces Training Command. The "E" flag was presented without ceremonies so that students could remain in their shops and laboratories.

Airport Plan

(Continued from page 16)

this field is the new Sikorsky helicopter, particularly fitted for getting to the wilder recreation spots of the Great Lakes area. Its inventor predicts that hundreds of these will be performing short-run cab-or-bus-type services within a few years of the signing of peace, and that many hundreds of thousands of them will be carrying individuals and their families wherever they wish to go. The helicopter may well take over the collection and distribution function now performed by the 'mail pickup' operation. It seems to me that the 'pickup' scheme can serve best as a preparation for a service of wider scope. It is all right to yank a sack of mail off the ground at flying speed and wind it up into the plane, or even some kinds of express matter, but what if it is a passenger that wants to go?

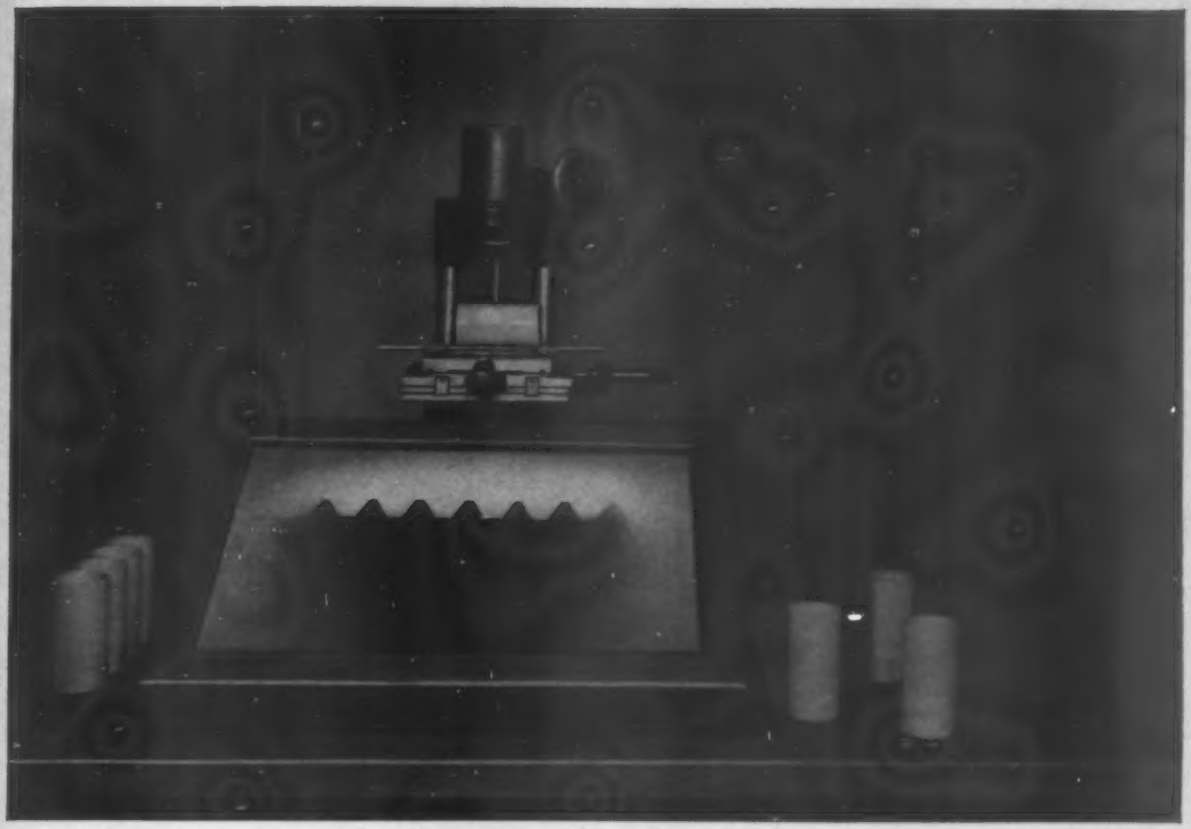
Private Flying to Grow

"There is going to be a phenomenal growth in private flying—as phenomenal as the growth in automobiling after the last war. Every thoughtful man has long been aware of the profound influence which the motor car has had upon every part of America and every phase of our lives—upon all our institutions, traditional points of view, modes of recreation, business habits, industrial technology, marketing practices, city planning—and the general pattern of living. The airplane is likely to have a similar influence. It will intensify some of our present problems and create new ones of its own. These problems will not automatically solve themselves. They can be solved only by clear foresight and intelligent anticipation of the difficulties to be met and overcome.

"Second, commercial air transport will continue to grow steadily. Between 1927 and 1942 the number of passengers riding the airlines increased from 8,700 to more than 4,000,000 a year. In the same period, air mail jumped from 1,270,000 to 44,600,000 pounds annually, and air express and freight from 46,000 to 22,300,000 pounds. Remarkable as it is, this rate of growth in my opinion will be considerably accelerated during the next decade.

Brazilian Woman Qualifies

Senora Annesia Pinheiro Machado, wife of a high ranking Brazilian military official, who was brought to this country by the Coordinator of Inter-American Affairs and the Civil Aeronautics Administration to receive flying instructions has qualified for an instructor's certificate. She has passed her examination for a commercial license, with a rating for both instructor and instrument flying. Senora Machado first soloed in 1922. She received her flying instructions in this country at the CAA Standardization Center at Houston. Her instructor was Les Habbles acting under the direction of L. M. Sheddnhelm, Chief of the Standardization Center. Now that she has qualified as an instructor, it is understood she will go back to Brazil to teach flying there.



Shadowgraph

RCA aircraft radio transmitters are precision instruments —and are made as such.

For example, the grooves on the ceramic forms on which certain coils are wound must be exceedingly accurate—because even minute deviations will affect the length of the wire and alter the coil inductance. Yet, because of warping when the ceramic material is fired, such deviations can occur. Hence, every form must be carefully checked by means that reveal the slightest irregularity in the grooves. Only forms that pass this test can be accepted for quantity production.

RCA has solved this problem by developing a special application of the Shadowgraph to project an enlarged image of each coil on a ground glass screen on which is engraved a standard groove outline. Sharply defined against this outline, any imperfection in the groove profile becomes conspicuous—and rejection follows.

That is one of many reasons why an aircraft operator when he sets up his RCA transmitter can be confident that its calibration chart or curve is accurate. Other precision parts of RCA aircraft radio equipment are likewise accurately checked by similar Shadowgraph procedure.

All of which is but another step in the long, rigid RCA routine which contributes so largely to RCA aircraft radio operating precision and dependability in military and transport planes. *Radio Apparatus Division, Radio Corporation of America, Camden, N. J.*

TUNE IN "WHAT'S NEW?"

Radio Corporation of America's great new show, Saturday nights, 7 to 8, E. W. T., Blue Network.

RCA

RCA AVIATION RADIO

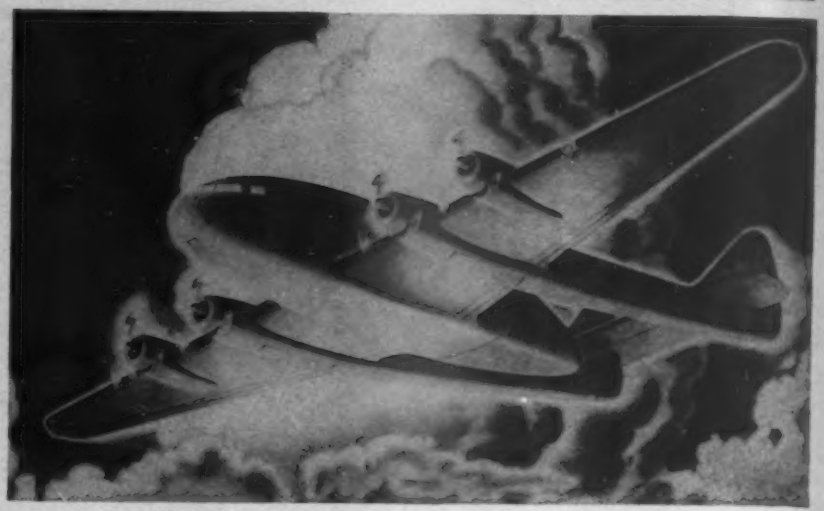
FOR VICTORY BUY WAR

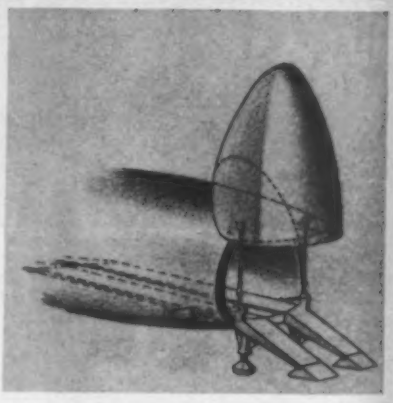
Martin Engineer Designs New Cargo Plane

WILLEM D. VAN ZELM, engineer with the Glenn L. Martin Co., has been granted a patent for a new type of cargo plane which, the company claims, will eliminate many of the difficulties now being encountered in the handling of aerial freight. The patent has been assigned to the Martin company.

The plane differs from aircraft now being used as cargo carriers in the arrangement of its various structural members and in the provisions for unloading and loading equipment which have been incorporated in its design. Ramps and winches for bringing aboard and storing freight are provided within the plane itself, thus opening the way for the rapid handling of cargo at any airfield where the plane may land and take off. Aerial freight service thus becomes economically practical to areas where the volume of business is not sufficiently large to warrant elaborate loading equipment.

Martin engineers have drawn up two versions of the van Zelm plane. Both are low-wing monoplanes with two and four engines, respectively, and tricycle landing gear. The tail surfaces are independent of the fuselage and attached to booms running out from the wings. The cargo compartment is in the fuselage, the after end of which opens like a door to permit easy loading of freight.





The same hydraulic mechanism used to raise this cargo door extends a collapsible loading ramp which can be adjusted to run either to the ground or to the back platform of a truck. The ramp itself is equipped with adjustable jacks close to the point where it hinges onto the plane, so that the cargo does not exert any strain on the plane during loading operations. The tricycle landing gear keeps the plane level, or in flight position, during loading and unloading operations. Thus it is possible to load automobiles, wagons, trailers, or other wheeled freight, by running them directly into the plane. Boxed freight is drawn aboard by means of a winch provided at the front of the fuselage.

Of the two models designed, the two-engined version has a gross weight of 60,000 pounds, and the four-engined version, 86,000 pounds and a useful load of 36,870 pounds, of which 27,000 pounds or 13½ tons would be cargo.

Youths Design Helicopter

Two recent college graduates—Corwin Denney, University of Michigan graduate in January, 1943, and Karl Schakel, who was graduated from Purdue University in 1942—have successfully flown a helicopter of their own design at Ann Arbor, Mich. Denney developed the design during his sophomore year at Michigan, but was unable to finance construction of a flying model until after he left school and went to work in an Ohio aircraft plant. In the Ohio plant he met Schakel, who had done considerable work in glider construction. Aeronautical Products, Inc., Detroit, furnished money and materials and construction was begun last April. Recent performance tests showed that the ship would rise with half the hp of its single engine, with cruising speed estimated at 100 mph. The ship is equipped with a tricycle landing gear. At the rear is a torque compensating propeller.

AAF Establishes Personnel Redistribution Center For Men Returning from War

The War Department has announced the establishment of the Army Air Forces Personnel Redistribution Center for the reassignment of Air Force personnel returning from overseas operations.

Officers and enlisted men returning from theaters of action, except those returning for medical care or specific assignments, will be re-valuated and then reassigned in accordance with the need and in the best interests of the service. Men receiving medical discharges will be assisted in their return to civil life through cooperation with various government agencies.

The new office will be under the direct supervision of the Assistant Chief of Air Staff, Personnel, at Headquarters, Army Air Forces.

WAVES Teach Navigation

WAVES with background in civil aviation are being chosen by the Navy for training as air navigation instructors at Naval flight preparatory, pre-flight and primary training centers in the Navy's latest move to utilize women in aeronautics. The first class, composed of officers already on active duty, entered the U. S. Naval Air Navigation School, Hollywood Beach, Fla., Aug. 7, the Navy reports.

The 17-week course, identical to that given male instructors, including hours in the air, consists of 350 hours of classroom instruction and 60 hours of practical aerology. New classes of WAVES will enter the school every month. A background in civil aviation as ground school instructors, pilots, or operating personnel, and knowledge of plane and solid geometry, and some trigonometry, are the qualifying requirements.

LOCAL DISTRIBUTOR SELLS PRODUCE IN SHANGRI-LA
Another of our county's prominent business men, Cyrus Brown, is utilizing our daily air cargo service to Shangri-La and points between.
Recently arrangements have been made by this local distributor to secure frequent shipments of many delicacies, new to this community, on return flights. "The amazing time-saving of air cargo," says Mr. Brown, "allows me to ship fresh milk and peaches almost around the world and have them arrive air-ship shape."
MILK
MILK

In the tomorrow that is nearly today, riches of our land will be distributed around the globe— ***by air!*** **In return, delicacies produced half a world away will become commonplace. Thus will air transportation enrich your life and your community.**

PRESIDENT

BRANIFF *Airways*

Chicago, Burlington, Kansas City, Wichita, Ponca City, Oklahoma City, Dallas, Ft. Worth, Houston, Galveston, Amarillo, Wichita Falls, Waco, Austin, San Antonio, Laredo, Corpus Christi, Brownsville, Denver, Pueblo, Colorado Springs.

'Adjustments' Supplanting Renegotiation of Contracts

By BARBARA B. C. McNAMEE

RENEGOTIATION of war contracts is virtually being abandoned by government procurement agencies. Army, Navy and the Maritime Commission have been developing procurement regulations which exempt contracts from renegotiation by periodically adjusting prices downward to reflect reductions in cost.

The Navy's "incentive" contract, War Department's "forward pricing" and Maritime's "price-minus" are part of this new trend in contracting; each is adaptable only to a fixed-price contract and offers the manufacturer freedom from renegotiation. Navy officials have called their plan an "incentive" because it not only avoids renegotiation but gives the manufacturer an opportunity to earn a bonus by reducing costs below the contract price.

New Approach

Army officials describe their new approach as a "periodic-pricing contract with exemption from renegotiation." A long term fixed-price contract is drawn up, divided into periods from three to six months in length. Procurement Regulation No. 360, Forms 1 and 2, permit the contracting officer to exempt the contractor from renegotiation at his discretion; the exemption is granted whenever complete agreement on price is reached between the two parties. The contract is negotiated at the end of each three to six month period for the next period on the basis of past costs and estimated future savings or increased costs. Form 2 permits the price to be fixed backwards for the first period, when there is no established basis for estimating the original price. This form is applied when contracts are being awarded for a new type of material or in a new plant or area where labor costs, etc., are not firm.

These exemption-from-renegotiation clauses have not yet been applied widely, Glenn A. Lloyd, Assistant Director of Purchasing, told *American Aviation*. He explained that they were unsuited to a large company making a variety of munitions, because the periodic negotiation would involve "a terrific amount of accounting." They are used most often, he said, "when a company has homogenous manufacturing operations. For instance we use periodic pricing for aircraft engine contracts and for Ford Motor Co.'s jeeps." He added that this type of contract would be eminently appropriate for airframe manufacturers except that in general they have cost-plus-fixed-fee contracts to which the exemption from renegotiation does not apply.

Experiments Made

The Navy's experiments with "incentive contracts" with several small manufacturers are reported to be "extremely satisfactory." Procurement officers claim it has the double value of cutting down costs and yet protecting the manufacturer against contingencies. They decribe it not as a formula for contracts but a method of approaching them. Like renegotiation there are no established percentages used, but each case is judged on its own merits with costs and percentages based on past performance and risk involved. Navy officials believe that the size of the company will not affect the applicability of "incentive contracts" but that on the whole the new approach is not suitable to an experimental enterprise. They emphasize that while "incentives" are available to all, they will never be forced on anyone.

Instead of naming a fixed-price, the Navy's incentive-type contract establishes a figure representing probable cost plus the profit to be earned on it (this profit, as well as any bonus earned, is free from renegotiation.) Above the established figure is set a margin, up to which the Navy guarantees to protect the manufacturer. Costs may be established by unit or by lot. If costs are cut below a certain level established in the contract, the manufacturer is awarded a bonus—a percentage of the saving effected to the Navy. Neither the margin for protection, the amount of profit nor the percentage of sharing in the Government's savings are standard in all contracts.

Conn Contract Model

The Navy's contract with C. G. Conn, Ltd., Elkhart, Indiana, for 23,000 airplane instruments was the first incentive experiment and will probably serve as a model for future contracts of this type. Navy spokesmen say its operation has been "most successful" and point to the great savings effected as proof of the desirability of offering manufacturers the stimuli of bonuses and exemption from renegotiation. With contract prices based on those paid to another manufacturer of these instruments, the converted musical instrument company saved the Navy about $1,250,000 and earned itself $96,000 in bonus.

The contract with Conn for 23,203 units was negotiated in March, 1943, using $195.00 as the estimated cost; this is the present and lowest level reached by the other manufacturer. Contract prices, actual cost of the first 5000 units and estimated costs on the remaining 18,203, explain clearly how the "incentive contract" operates to cut down costs and reward the manufacturer:

Units	*Contract Price*	*Actual Cost first 5000 / Estimated cost of remainder*
1. 5000	$280.00 (Contractor protected to .....$280; to share 1/10 of savings below ..$249)	$201.82 $128.30 normal cost; 56.06 non-recurring cost; 8.7% { 11.00 profit / 6.46 bonus
2. 10.000	$210.00 (Contractor protected to .....$230 to share 1/10 of savings below ..$196)	$152.76 $132.70 normal cost; 15.1% { 13.70 profit / 6.36 bonus
3. 8203	$195 (Fixed price with no protection)	$152.45 *

* The company has voluntarily reduced fixed price on last 8203 units to $152.45. Estimated % of profit on entire contract: 12.5%

Average contract price per unit	$215.47	Total contract price	$4,999,585
Average actual & estimated cost per unit	$163.22	Total actual & estimated cost	$3,787,247
		Saving	$1,212,338
For earning $1,212,338 saving to Navy, Company was paid bonus of			$ 95,900
First 23,203 "X" company units cost $233 or total of			$5,174,269
First 23,203 Conn units estimated to cost $163.22 or total of			$3,787,247
Incentive contract saved Navy			$1,387,022
Conn has agreed to a new contract on fixed price basis exempt from renegotiation at			$ 148.50

Russia Announces New Models

Announcement of new plane models was one of the more important features of Russia's observance of Aviation Day Aug. 15. Claims of growing superiority over the German air force also were acclaimed in the Russian press.

Red Star, the Army newspaper, announced the appearance in action of the YAK-1, a fighter with a 20 millimeter cannon and two 7.6 millimeter machine guns; a LAGG-3 fighter, H-2 Stormovik attack bomber and PE-2 twin-engined dive-bomber. These planes, Red Star said, were superior to the enemy's in both speed and armament.

Air Forces Training Command Reorganized

The Army Air Forces Training Command was recently reorganized, and Commanding General Barton K. Yount, now heads three regional commands combining for the first time the functions of both technical and flying training.

The three regions fan out into Flying Training Wings and technical training centers. Facilities formerly in the independent technical training set-up have been reassigned to complete the regional structure.

Authority to administer the simplified organization channels from General Yount at Fort Worth, Texas, through Chief of Staff, Brigadier General Walter F. Kraus and two deputy Chiefs of Staff, Brigadier General William W. Welsh for flying and Colonel J. P. McConnell for technical training. Under these staff chiefs, a Western, Central and Eastern Command will establish direction of the schools which train AAF personnel.

Plan Arctic Flying Base

To determine what must be done to make Arctic flying more efficient, the RCAF has proposed setting up a winter experimental and training station at Kapuskasing, according to report from Ottawa. This location is about 450 miles northwest of Toronto.

SCR-299

Vanguard of Invasion!

The SCR-299 Mobile Radio Communications unit played a great part in the invasion of Africa and Sicily . . . these units were used as mobile radio stations, transmitting voice commands to fast moving armored units while in action, or as permanent radio stations . . . even under the most difficult operating conditions.

A leading military authority said, "My observations in the theatres of war make it possible to say that the SCR-299 hit the jack pot in the mobile radio field as has the jeep in transportation."

BUY MORE BONDS!

THE WORLD'S LARGEST EXCLUSIVE MANUFACTURER OF SHORT WAVE RADIO COMMUNICATIONS EQUIPMENT

the hallicrafters co.

CHICAGO, U.S.A.

U. S., Canada Should Coordinate Their Air Routes, Says Dickins

CANADA AND THE UNITED STATES should coordinate their main line and feeder air routes, C. H. "Punch" Dickins, vice president and general manager of Canadian Pacific Air Lines, recommended before the recent Mid-West Global Air Conference at St. Paul.

"The record of peaceful relationships between Canada and the United States, indicates it is of the greatest importance that our main line and feeder air routes be developed on a coordinated plan to ensure the maximum benefits for all," he said.

Dickins pointed to 100 years during which the two countries have "lived and worked together in harmony."

"This free interchange has been a model of peaceful progress for the world," he said. "Perhaps the main instrument in making possible the most cordial relationships which have existed has been transportation. Highways, railways, waterways, and now airways have been key factors in cementing our economic and personal contacts."

He predicted rapid development of Canada's internal air services after the war, "particularly feeder lines and northern services to strengthen and expand the main lines."

"Externally, Canada must have air lines to service her international trade and commerce, which is essential for her economic life," he added. "Air transport must be treated by all governments as transportation which can bring benefits and which is essential to the future of all nations—and not as a political bargaining weapon for the enjoyment or selfish exploitation of a single nation."

Dickins declared that any nation which endeavors to restrict the logical expansion of air transportation, whether government or privately owned, "will be relegated to an inferior position immediately, and will be completely out of the picture in a few short years as other nations expand and develop their air services under favorable conditions."

He revealed that plans for an "aerial inventory" of Canada are being formulated to show the nation's natural resources.

"This camera study will mean much in opening up new areas and providing positions for our returned airmen," he said. "I have seen what northern air services into hitherto remote areas have meant in the development of Canada and Alaska. Many possibilities for Canada's future air development lie in her northern areas where surface transport is difficult or does not exist."

Dickins forecast that with planned and coordinated development of U. S.-Canadian feeder and mainline routes, "there will be no place on continental America which is more than an overnight trip to any other part of the continent, thus bringing the people of Canada and the United States even closed together, and further strengthening the bonds of peace."

"The United States and Canada, as leaders of democracy in the Western Hemisphere, should set an example of planned, coordinated peacetime air services," he concluded.

Ryan Executives Confer With 'The Boss'

New York office executives of Ryan Aeronautical Co. were in San Diego, Cal., last fortnight to discuss expanded operations of the company's Exhaust Systems Manufacturing Division with President T. Claude Ryan. Left to right—Fred Bohling, New York office executive; Ryan; Sam C. Breder, the company's sales manager; and Orrin Ross, head of the New York office.

Airpower's War Role Recognized by Navy In Reorganization

The Navy's recent action dividing the Bureau of Aeronautics into an operations section and a material office is generally considered in Washington as an acknowledgement of the increased importance of aviation. First official recognition of aviation came last month with the promotion of Rear Admiral John S. McCain to Vice Admiral and Deputy Chief of Naval Operations for Air.

Secretary Knox last fortnight declared it was now advisable "to increase the responsibility and autonomy of the aeronautics organization in procuring the finest aircraft types, and perfecting training, supply systems, and other administrative functions."

"This is a definite recognition of the growing importance of aviation," he said, "a step toward the desirable goal of closest possible coordination between the fleet and its air force."

But when asked if the new move was linked to demands for a separate air force, he said: "There is no clamor in the Navy for a separate air force."

In explaining the reorganization, Knox said that the aviation planning, personnel, training, flight and air information divisions of the old Bureau of Aeronautics will be transferred to the office of Admiral Ernest J. King, Chief of Naval Operations, where they will be administered by McCain. The functions of the planning division are "long-range planning for planes, engines and other equipment, coordination of plans for planes, personnel, and other carrier procurement, and development of shore installations." The air information division appraises the caliber of enemy planes and the flight division maintains statistics and records of pilots, he said.

Rear Admiral Andrew C. McFall, one of the Navy's earliest aviators, has been named Chief of Naval Aviation Operational Training, succeeding Vice Admiral Arthur B. Cook, new Commander of the Caribbean Sea Frontier and the 10th Naval District. The aviation division of Naval Operations will be absorbed into the new set-up with the exception of Naval Air Transport Service, which will report separately to McCain.

The Bureau of Aeronautics now reverts to its original status as a material procurement, design and maintenance office under Rear Admiral DeWitt Clinton Ramsey. It will retain all the non-operational functions of the divisions which have been transferred to McCain.

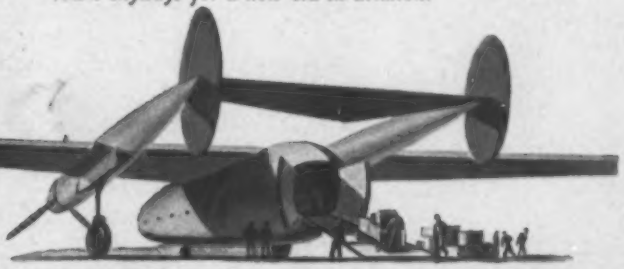
Fix Blame for Glider Crash

Faulty manufacture and inspection caused the St. Louis glider crash Aug. 1 in which 10 persons were killed, the War Department announced last fornight. A summary of conclusions reached by three investigating groups, the announcement said, indicated "that faulty manufacture by a subcontractor, faulty inspection by the prime manufacturer, and inadequate enforcement of inspection procedures, combined to produce a fatal hidden defect in a wing strut metal fitting." The Army has temporarily suspended two inspectors in connection with the accident.

"Sampling" the breeze

AVIATION "experts" once opposed enclosing the pilot in a cockpit, claiming he needed to feel the rush of air upon face and body in order to tell what his plane was doing. Today the pitot-static tube protruding from wing or fuselage does this job with a lot more accuracy and dependability, transmitting dynamic and static air pressures to the instrument panel for the operation of the air speed indicator, the rate-of-climb indicator and the altimeter. Its rain- and-ice-proof construction assure accurate and continuous functioning under all weather conditions. The design and construction of Kollsman pitot-static tubes are representative of the skill that goes into all Kollsman precision aircraft instruments, long supplied for military and civil aviation.

THE CARGO PLANES OF TOMORROW *will differ in many respects, depending upon the service they are to perform. But there is one thing they will all have in common: instruments will play a tremendous part in their scope and usefulness. Kollsman engineers are constantly developing new and better aircraft instruments which will help widen and extend tomorrow's skyways for a new era in aviation.*



KOLLSMAN ELECTRICALLY HEATED PITOT-STATIC TUBES *are specially designed so that they are aerodynamically, mechanically, and thermally correct. Their construction ensures the faithful transmission of pitot and static pressures at all speeds and through all angles of pitch and yaw up to 16 degrees.*

KOLLSMAN AIRCRAFT INSTRUMENTS

PRODUCT OF

SQUARE D COMPANY

ELMHURST, NEW YORK • GLENDALE, CALIFORNIA

RYAN-STANDARD cabin plane; pioneer passenger airliner.

RYAN M-1, first production monoplane in America.

RYAN S-T metal-fuselaged primary trainer; led trend to low-wing types

RYAN S-C, cabin plane for private-owner use, featured all-metal construction.

RYAN YO-51 "Dragonfly", Army observation plane with unique performance ability.

RYAN PT-22, one of Army's standard primary training plane types.

RYAN PT-25, superbly engineered plastic-bonded plywood trainer.

Yank Boy Gets Jap!

OUR BOY GETS JAP! LOCAL BOY GETS JAP! NEIGHBOR'S BOY GETS JAP!

Large numbers of Ryan planes are in the war. But close to the hearts of the men who build them, are the Ryan trained *flyers*—thousands of them—now doing such a magnificent job on all fronts.

Over Tokyo with Doolittle were *four* alumni of Ryan flying schools. From Europe, from Africa, from the South Pacific now come letters from Ryan graduates—fighting flyers whose appreciation of the Ryan schools' creed of "Thoroughness," is its highest tribute.

Ryan Aeronautical Company is the only major aircraft manufacturer which also, through its subsidiaries the Ryan Schools, operates hundreds of airplanes in daily service. In peace, as in war, such extensive first hand operational knowledge has enabled Ryan to design and build unique *flying experience* into a twenty-year succession of performance-proven aircraft.

Although now 100% devoted to the all-important assignment of training U.S. Army pilots, the Ryan Schools look forward to again including civilian training following Victory. If you or any member of your family expects to play a part in the future of aviation, write today for the interesting new booklet, "So Your Boy Wants to Fly." *RYAN SCHOOL OF AERONAUTICS, San Diego, Calif. Operating bases: Hemet, Calif., Tucson, Ariz.*

RYAN

Rely on Ryan to Build Well

RYAN BUILDS WELL

Ryan construction, proven in aviation's pioneer days, now proven in war, will tomorrow produce safer, more useful peacetime aircraft.

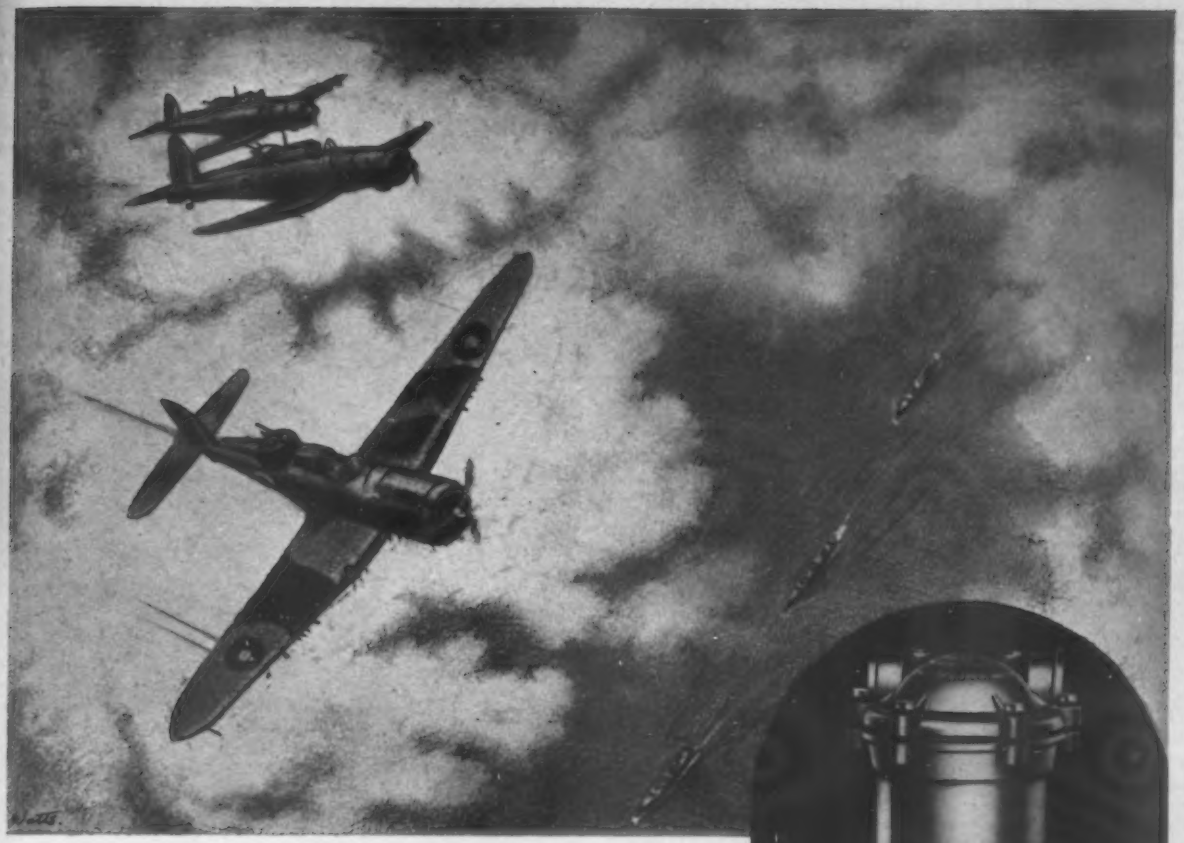
RYAN TRAINS WELL

Ryan School of Aeronautics, famous peacetime air school, now training fine U.S. Army pilots, follows one creed: Thoroughness.

RYAN PLANS WELL

Modern engineering + flying experience. Typical result: Ryan exhaust manifold systems are now used on the finest planes of other manufacturers.

GENERAL OFFICES: LINDBERGH FIELD, SAN DIEGO, CALIFORNIA



LOOKING FOR TROUBLE

TO keep the Allies' supply lines open, to enable us to dispose men, munitions and food where they are wanted, demands utmost efficiency to the last detail.

Aircraft looking for trouble and ready to destroy the menace that comes from under the sea, ships, guided by men ceaseless in their vigilance, dodging this trouble, all are dependent on the absolute reliability of engines both in aircraft and ships.

The job of work Vokes Filters have to do is to ensure that the air, oil and fuel oil servicing engines is free from impurities so that maximum power and speed and complete dependability can be assured. Vokes Filters, under the severest battle conditions in all areas of fighting on land, sea and in the air, have stood up to demands made on them. Exacting tests in nearly three years of war in all branches of the services has substantiated the claim for Vokes Filters —99.9 per cent. FILTRATION EFFICIENCY UNDER ALL CONDITIONS.

TOP—VOKES OIL FILTER FOR AIRCRAFT. CONTINUOUSLY REMOVES ALL IMPURITIES TO 0.00004 IN. DIA. RESISTANCE NEGLIGIBLE, NO INTERRUPTION OF OIL CIRCULATING.

BOTTOM—VOKES AIR FILTER FOR AERO ENGINES. STANDARD TYPE FOR MOST FIGHTING AIRCRAFT.

VOKES

VOKES LIMITED · FILTRATION EXPERTS

THE ARTHUR S. LEITCH CO. LTD.
1123 BAY STREET, TORONTO, CANADA
E. CANTIN, 101 PARK AVE., NEW YORK

Airports Need 'Ready Cash'

'Let Them Spend Their Own Revenue For Safety's Sake', Says Groves

THE POSTWAR AIRPORT should be run by a board of directors—"not by a municipal purchasing agent or a budget bureau."

This suggestion was made to *American Aviation* last week by John Groves, manager of the Washington National Airport, who recently resigned to become head of the Operations Division of the Air Transport Association.

Groves points out that, notwithstanding the fact Washington's airport made a return of $50,000 on its investment its first year of operation and, in spite of the war, is the most solvent air terminal in the United States, there is still one glaring fault in its administration:

Groves

It isn't allowed to spend its own revenue!

"We have to wait on a recommendation of the Bureau of the Budget, and then, perhaps, action of a Congressional committee before we can spend any money," he said as he prepared to leave the famous depot he helped build in 1941. "Repairs to vital equipment and replacement of parts often are held up for several weeks while one or the other of these groups is deciding whether to give us the money to pay for them.

"We aren't allowed to touch a penny of our own revenue. It is deposited with the Treasury Department, and we operate out of our annual allowance, which is part of the Department of Commerce appropriation. Personally, I think airports have outgrown the allowance age."

Groves contends such budgeting is unhealthy "if only because of the safety factor involved." Tardy replacement of broken or worn-out equipment may cause serious accidents, he fears.

To remedy this situation, he advocates the appointment of a board of directors with complete control over the airport's purse, including authority to spend revenue for operations. The airport manager would have quick access to the board with his recommendations.

"This is not a Washington complaint alone," he observed. "No doubt many an airport manager has to contend with a municipal purchasing agent or a city council finance committee. So the board-of-director-movement should be national."

A municipality should choose its airport board more carefully than its leading bank or corporation chooses its directorate, because, after the war, the airport will be the most vital industry in town, he believes. He doesn't like to discuss the postwar airport's operations because he expects they will be patterned after techniques now being tested in the war, many of which still are restricted. However, he likes to talk about postwar airport revenue-makers. Groves knows this subject well, for, under his direction, the Washington terminal has been extremely successful along this line. (It took in $403,253.92 in the fiscal year 1942).

In his opinion, the Washington airport is the most interesting place in the nation's capital—a city that has the Washington monument, the Smithsonian Museum, and dozens of famous governmental attractions. He thinks airports in other cities might well be more interesting, from a local point of view, because "they haven't got the competition our's has."

First of all, the Washington plant is interesting because it is beautiful, says Groves. But it would not be, he fears, were it not for the corps of expert building craftsmen he maintains—plasterers, painters, carpenters, plumbers, and the like. They see to it that alterations, most of them requested by tenants, are made in keeping with the original conception of the airport's planners.

"Everyone in town should take pride in his airport, and it is up to the airport manager to see that the plant justifies such pride," he said. "The main dining room should be the best place in town to eat. The coffee shop should be designed for economy and efficiency."

"Conducted tours are good advertising and a fine source of revenue. There are comparatively few people today who would not find interest behind the scenes of a modern airport, and who would not be willing to pay 25 cents for what they see. To watch the workings of an airway traffic control system alone is worth that much."

During the 1942 fiscal year, conducted tours at the Washington airport (at 25 cents each) brought in $863.35, Groves revealed. Receipts in the main restaurant were $10,962.29, and $17,700.95 in the coffee shop.

Since the airport opened in June, 1941, $75,000 has been taken from the turnstiles, through which visitors are required to pass to gain access to the airport's terrace and its commanding view of the runways. Groves strongly recommends the turnstiles as a device through which each citizen may contribute "in a special way" to the airport's support.

The airport buys utilities at industrial rates and "pipes" them to tenants at consumer's rates, thus realizing a small profit. Included among these is steam, which is generated in a central heating plant.

The airport "stretches out its arms" to itinerant aircraft, but before each plane takes off again, its owner contributes something to the airport's support in storage and tie-down charges. These totaled more than $2,000 in 1942.

The terminal's concessions are divided into "major" and "minor" groups. The major concessions hand over 10% of their gross receipts. Among them are the main dining room, coffee shop, soda fountain, airline lunch packing room, and outside refreshment stand. Minor concessions, which pay 5%, are the airport barber shop, employes cafeteria, news stand, novelty shop, and the various vending machines. Receipts of each concessionaire are checked every two weeks through use of a duplicate cash register key.

Busses pay an assessment for the number of miles they run on airport roads, an item that contributed $698.72 in 1942. During the same year, taxicab revenue totaled $15,017.85.

Groves predicts that airport managers will assume far greater importance after the war because of added responsibilities. He foresees supplemental airports in nearly every town rather than expansion of single airports.

"It is a foregone conclusion that our airports will require dual runways soon after the war," he said, "but this will not be enough. We will need supplemental airports as well. We will need these for the same reason a congested railroad terminal needs more tracks.

"But more tracks as applied to airplanes mean more airports. We can't expand an airport like Washington's to keep on taking more traffic. Another airport must be added, then a third, then a fourth."

The Civil Aeronautics Administration already has planned the proper locations for supplemental Washington airports, he revealed.

Revenue Statement

(Fiscal Year 1942)

RENTALS
- Terminal Building, $31,346.40
- Hangars, $27,818.40

LANDING FEES, $34,700

RAMP SERVICE
- Scheduled Aircraft, $19,700
- Itinerant Aircraft, $1,733.83
- Aircraft Storage, $317.25

CHARTER AND SIGHTSEEING SERVICE
- Air Carrier, $17.50
- *Air Services, $1,086.20
- *Goodyear, $36.53
- Goodyear Guarantee, $1,963.47

GASOLINE CONCESSION
- Gulf Oil, $150,000

TAXICAB CONCESSION
- Airport Transport, $15,017.85

BUS CONCESSION
- A. B. & W. Transit Co., $698.72
- Guarantee, $125.48

AIR TERMINAL SERVICES
- Restaurant, $10,962.69
- Coffee Shop, $17,700.95
- Employees' Cafeteria, $2,884.62
- Hangar Cafe, $55.57
- Meals Aloft, $3,557.38
- Soda Fountain, $2,166.40
- Automatic Soft Drink Vendors, $899.08
- Cart Vendors, $326.88
- Vending Machines, $58.50
- Tobacco and News Stand, $3,698.97
- Souvenir Stand, $641.24
- Barber Shop, $338.42
- Lockers, $9.66
- Scales, $8.28
- Rest Rooms, $31.46
- Miscellaneous, $66.10
- Outside Stands (2), $992.20

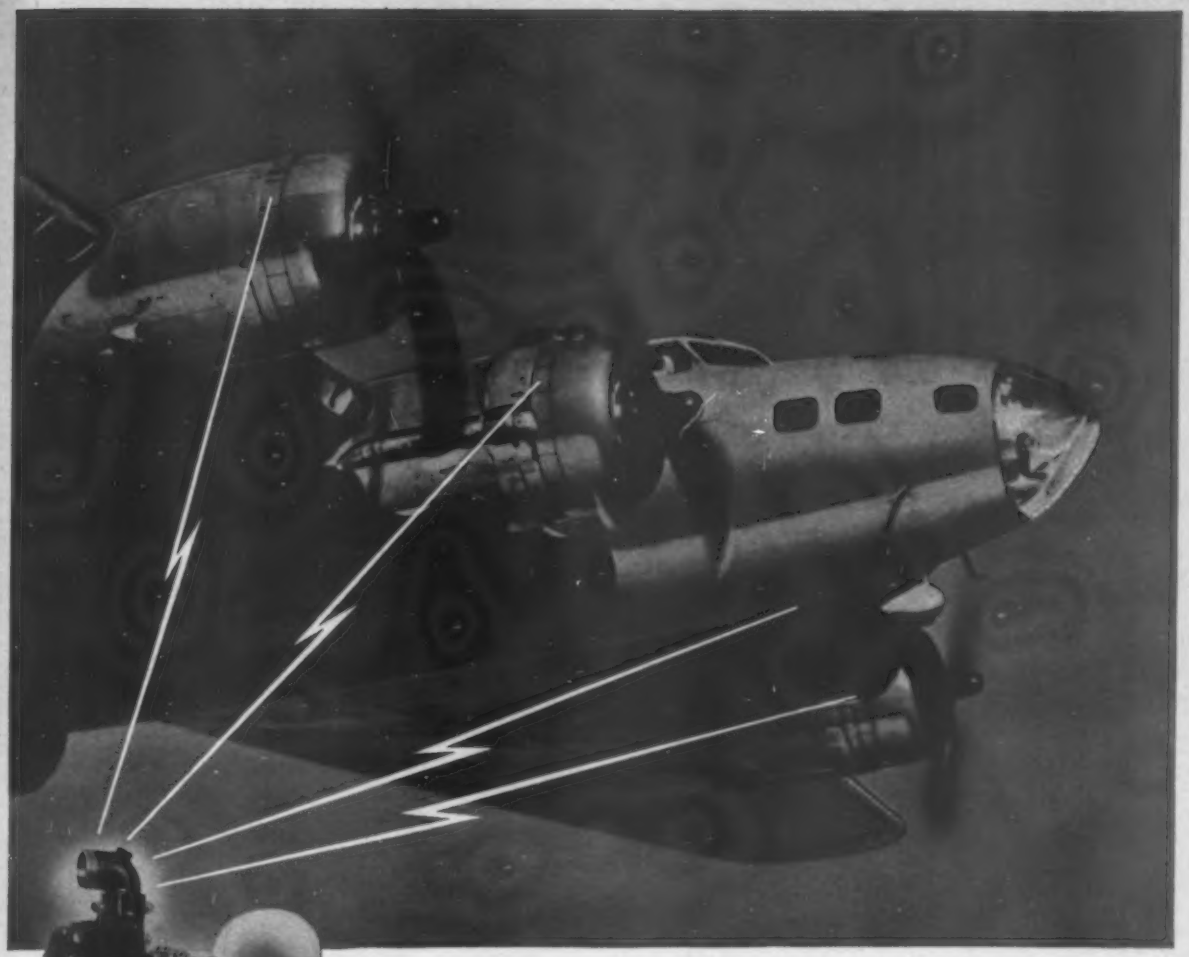
TURNSTILES, $47,254.40

MISCELLANEOUS
- Paper Cups, $370.04
- Napkin Dispensers, $36.65
- *Conducted Tours, $863.35
- Work Orders, $766.20

UTILITIES, SALE OF
- Telephone, $5,327.55
- Steam, $9,231.38
- Electricity, $9,664.81
- Water, $717.51

TOTAL RECEIPTS, $403,253.92

*(*Suspended because of the war)*



SPARKS OF LIFE
for the Queen of the Skies

HIGH out of reach of thundering enemy ack-ack, the Boeing Flying Fortress carries out her allotted task. One thing that enables her to fly at such high altitude is Bendix-Scintilla* Aircraft Ignition.

This precision-engineered equipment must generate, control and deliver *every minute* 40,000 sparks to each engine . . . timed to the split second! That calls for *precision* ignition . . . as engineered by Scintilla.

Engineering Bendix-Scintilla Aircraft Magnetos, Harnesses and Switches to their present high-altitude performance has constituted a series of major accomplishments in aircraft ignition design.

Today, these accomplishments are contributing importantly to the strength of wartime Air Power. Tomorrow, they will just as surely aid the progress of peacetime Air Transportation.

Bendix-Scintilla Aircraft Magnetos, Harnesses and Switches are vital members of "The Invisible Crew"—precision equipment which 25 Bendix plants from coast to coast are speeding to our fighting crews everywhere.

"THE INVISIBLE CREW" Bendix AVIATION CORPORATION

*Trade Mark of Bendix Aviation Corporation.

SCINTILLA MAGNETO DIVISION BENDIX SCINTILLA THE WORLD'S FINEST AIRCRAFT IGNITION

Sale of U. S. Planes to Mexican Airlines Urged by Commission

CREATION of an agency in Washington for continuous cooperation with the transportation authorities of other American republics, with particular reference to growing aviation needs, is recommended in a report recently made to the President by the Mexican-American Commission for Economic Cooperation.

The report also urges that the United States sell or rent to Mexico new airline equipment as quickly as possible to help keep essential air transportation moving. Need for immediate delivery of spare parts for Mexican airline equipment, practically all of which is reported as over age, was especially stressed.

The proposed transportation agency was first suggested as "a permanent mechanism which can operate effectively and continuously with the transportation authorities of Mexico," but the plan was subsequently expanded to include all the American nations. No action has yet been announced by the White House on this proposal.

The Mexican-American Commission was appointed last June as the result of conversations between President Roosevelt and President Manuel Avila Camacho of Mexico during their conferences in May at Monterrey and Corpus Christi. Representing the U. S. were Wayne C. Taylor, under Secretary of Commerce, and Dr. Harry White, assistant to the Secretary of the Treasury. Representing Mexico were Evaristo Araiza, general manager of the Monterry Steel Works, and Valentin R. Garfias, Mexican mining engineer. Secretaries to the respective delegations were Dr. August Maffry of the U. S. Department of Commerce, and Dr. Jesus Silva Herzog of the Mexican Ministry of Finance.

Text of the Commission's recommendations on Mexican airline equipment follows:

"Aviation equipment (in Mexico) is almost all over age, having been second-hand when acquired. The demands upon Mexican transportation facilities have increased greatly since the outbreak of the war. The States of Yucatan and Campeche depend exclusively upon ship and airplane service. The Commission believes the Mexican transportation system is not equal to the burden put upon it without adequate minimum materials from the United States. The Commission recommends that immediate delivery be made of necessary spare parts.

"The Commission believes that the possibilities of obtaining some existing equipment in the United States for purchase or rental should be further explored, and if any such equipment is obtainable prompt arrangements for its export to Mexico should be made.

"The Commission feels that the present organization of agencies in Washington does not lend itself to meeting the transportation needs of Mexico and other American republics. Transportation is so fundamental in the development of the economics of all nations of this hemisphere that the Commission recommends that a permanent mechanism be created, in Washington, which can cooperate effectively and continuously with the transportation authorities of the American republics.

"The Mexican airways network comprising about 40,000 route kilometers and 264 air fields is believed by the Commission to satisfy the country's essential wartime requirements. Additional mileages contemplated are believed to be desirable as soon as it may be possible to develop them. Better equipment on the lines in operation is absolutely essential since much of it at present is outworn and will soon be obsolescent. The airport improvement program of the Ministry of Communications and Public Works should be pushed as rapidly as circumstances permit."

Navy Plane Built in Canada

Most of the 4,000 machined parts, as well as the retractible landing gear embodied in the construction of the new Curtiss Navy dive-bomber, are being produced in the Canadian Car & Foundry Company's main machine shop at Point St. Charles, near Montreal, it is reported.

More P-47s Wanted

Overseas air forces squadron commandants are demanding assignment of more and more P-47 Thunderbolt fighter planes, Maj. Gen. Ralph Royce, commanding general of the 1st Air Force, declared in presenting the Army-Navy "E" to workers of Republic Aviation Corp., Farmingdale, N. Y., on July 17.

New Boeing Invention

A Flying Fortress pilot, Capt. Frank Schwab, is shown operating Boeing's new "Flide-Rule," a cross between the airman's flight computer and the engineer's slide rule. The device accomplishes many complicated calculations automatically, enabling pilots to make split-second decisions during operations in time of emergency.

CAA Pilot Training Must Continue in Peacetime — Stewart

Continuation of the Civil Aeronautics Administration's pilot training program after the war is essental to the fulfillment of the "great potentialities of civil aviation," R. McLean Stewart, Executive Director of Training for CAA, told the recent Midwest Global Air Conference at St. Paul.

"If we are to hold the place which we will have won at the end of the war, we must see to it that each year a large number of young people shall be taught to fly," he said.

Stewart said the training of young pilots was necessary both for military security and civil aviation. He expressed the conviction that the government must aid in this training program and urged additional Congressional legislation to continue the Civil Pilot Training Act which expires in 1944.

Reaffirming his hope of acquiring funds to train women pilots and high school students during the coming year, Stewart questioned whether the Army's training of civilian women pilots was not more properly "a function which should be assigned to civil aviation."

"The encouragement and aid given by the Civil Aeronautics Administration to the development of private flying in the late thirties was the beginning of a great movement," he said. "The men who were trained in that year provided a nucleus on which to build the expansion which took place in the following years, not only in civil aviation but in both of our armed services. Civil aviation has every right to take great pride in the part which it has played in the building up of our Air Arm."

He reviewed the history of the Civilian Pilot Training Program and its successor, War Training Service, but warned that by the end of the fiscal year, the armed services, with a diminished need for pilots, may find their own facilities adequate to meet requirements. He pointed out that although civil aviation might cease to be needed in training Army and Navy personnel, it has "clearly demonstrated its value."

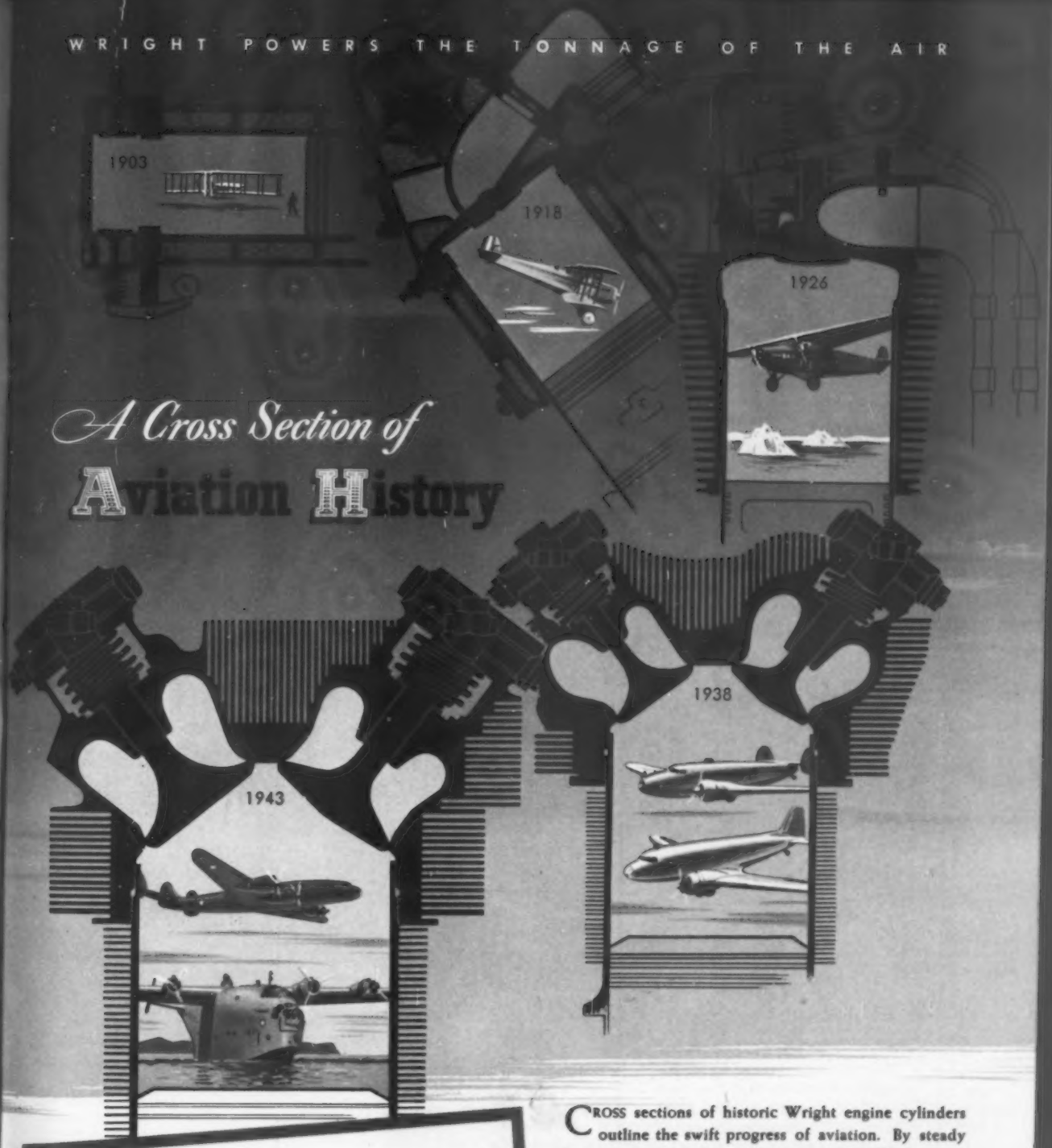
"It has shown that it can produce good pilots in large numbers. It has earned the right to continue to have an important role in the training program. And, from the standpoint of the national economy, it is obviously desirable to make as much use as possible of the facilities of civil aviation," Stewart declared.

"If you desire strongly enough to keep the training organizations of civil aviation—which have been developed in conjunction with our educational institutions—at work during the war period and in the peace to come, you and other air conscious groups throughout the country will find a way to translate your wishes into actions. It is for you to say what shall be done. The future will be what you make it."

Wiggins Makes Struts

E. W. Wiggins Airways, Inc., Norwood, Mass., has announced it is in full production of wing struts and jury struts for the U. S. AAF CG-4 troop transport glider.

WRIGHT POWERS THE TONNAGE OF THE AIR



A Cross Section of Aviation History

1903 The 12 H.P. engine in the Wright brothers' first plane was a product of their own ingenuity, built after many existing types had been considered and rejected.

1918 The 150 H.P. Wright Hispano Suiza, mass-produced for World War I, which introduced to America the art of precision aluminum casting, was redesigned to 300 H.P. before war's end.

1926 Wright developed and produced America's first radial, air-cooled engines. Byrd used early 200 H.P. Whirlwinds for his North Pole flight, and 220 H.P. models powered the numerous ocean flights which followed.

1938 Modern air transport had been inaugurated by Douglasses with 700-800 H.P. Cyclones. In a Lockheed 14 transport with 1100 H. P. Cyclones, Howard Hughes girdled the globe in 3 days, 19 hrs.

1943 World's largest transports, the Lockheed Constellation and the Martin Mars use 2000 H.P. Cyclones. Many outstanding military planes, such as Boeing Flying Fortresses, were developed around the Cyclone.

THE STORY OF WRIGHT

is the story of flight, as shown in Walt Disney's "Victory Through Air Power"

CROSS sections of historic Wright engine cylinders outline the swift progress of aviation. By steady improvement in engine design and the development and adoption of stronger, lighter materials, Wright has consistently opened the way for new advances in the size and performance of aircraft. Wright research and production facilities are now providing for the present and future requirements of tonnage air transport.

Wright ENGINES

LIGHT · COMPACT · POWERFUL

CAB Reverses Decision, Grants LA-San Francisco Line to WAL

Finds Cities Entitled To Competition; TWA Ruling Reaffirmed

IN a complete reversal of its decision of May 10, 1943, the Civil Aeronautics Board on Aug. 21 announced the award of a certificate to Western Air Lines for a route between Los Angeles and San Francisco.

At the same time, the Board reaffirmed its decision granting TWA a stop at Los Angeles on route 37—also putting that carrier into the Los Angeles-San Francisco traffic field—but included a condition that TWA shall not engage in local traffic between Las Vegas and Los Angeles.

Western and TWA will not begin operations until defense requirements permit. When they do there will be three carriers in the Los Angeles-San Francisco territory, United Air Lines already operating the route.

In its May 10 opinion, the Board had reversed its examiner, Albert Forster, who had recommended a route for Western. "The operations proposed by Western would not provide any air transportation not now made available by existing carriers," the Board had said.

In the opinion issued last fortnight—after the case had been reargued at the request of Western—the Board laid down a "competition" philosophy which may play an important part in some of the new route cases to be heard shortly.

"In considering the extent to which competition is necessary to assure the sound development of an air transportation system . . . its justification does not depend upon the inability or unwillingness of an existing carrier to render adequate service," the opinion said. "The carrier's failure in this regard may evidence a need for competition, but its ability and willingness to furnish a sufficient volume of service does not, of itself, constitute a bar to the authorization of a competitive service. Otherwise, no competition would ever be authorized for there is no limit to the extent to which an existing carrier could expand to meet increased demand.

"Adequate service is a relative expression which has been construed to mean only that such facilities must be supplied as might be fairly demanded, considering, among other things, the size of the place to be served, the extent of the demand for service, the cost of furnishing the service and other facts which would have a bearing upon the question of convenience and necessity. This service is but the minimum standard fixed by the Act, but considerations of national policy require much more . . .

"While no convenient formula of general applicability may be available as a substitute for the Board's discretionary judgment it would seem to be a sound principle that, since competition in itself presents an incentive to improved service and technological development, there would be a strong, although not conclusive, presumption in favor of competition on any route which offered sufficient traffic to support competing services without unreasonable increase of total operating cost. How that competition would be provided must depend upon the facts and circumstances of each particular case."

San Francisco, the Board found, is entitled to the benefits of competition on transcontinental service operating by way of different intermediate points. "TWA already is authorized to render this competing service and its primary accent so far as San Francisco traffic is concerned should be, in our opinion, toward the improvement and development of transcontinental air traffic to and from this large traffic point. Nothing should be done by us therefore which would tend to impair the growth of that transcontinental business of TWA."

San Francisco and Los Angeles produce such a large amount of air traffic and have such a great air traffic potential for the future "as to be entitled under the Civil Aeronautics Act of 1938 to the benefits of competition," the Board said.

It pointed out that in November, 1939, Los Angeles-San Francisco passengers totaled 3,694, ranking fifth in U. S. intercity traffic. In a 30-day period in August and September, 1942, there were 6,937 air passengers, ranking first in inter-city traffic.

"It is noteworthy that between other large cities in the United States, such as New York-Washington and New York-Chicago, which now rank second and fourth, respectively, in inter-city traffic, two and three competing carriers operate, while United alone serves Los Angeles and San Francisco," the opinion stated.

"In order to provide the benefits of local competition we believe that Western should be authorized to operate between Los Angeles and San Francisco. Its fortunes in this area will be wholly dependent upon its ability to develop this local traffic aggressively. This authorization should strengthen Western by giving it access to a rich traffic market, thus tending to improve its average traffic potential.

"TWA has urged that it can improve its operations substantially and at the same time not impair its transcontinental service if it operates to San Francisco transcontinentally by way of Los Angeles. Regardless of what future experience may prove in this connection, we are persuaded that on the basis of presently available facts, and the reasons set forth in the original opinion, it should be permitted to operate in this manner. Because of the very heavy traffic potential between Los Angeles and San Francisco, we believe that the restricted amount of competition which TWA would render between Los Angeles and San Francisco, if it be permitted to carry local traffic on its through airplanes, would be justified and would not seriously impair either United's or Western's operations here. We assume, of course, that when TWA's transcontinental business in and out of San Francisco is sufficient to fill its planes it will, in the interest of its own business, operate such planes on the shortest possible transcontinental route and nothing which we are deciding in this case should be construed as preventing it from doing so."

In restricting TWA's Las Vegas-Los Angeles business, the Board said that this segment constitutes the most heavily traveled and the most profitable part of Western's route 13. "It is apparent," it added, "that if TWA were permitted to share in the traffic between these points Western would suffer a substantial diversion of revenue over a route upon which traffic is not particularly heavy. Clearly, there is not at present sufficient traffic between these points to justify the operation of a competitive service."

Radio Rack Mock-Up

This novel mock-up of a radio rack, of the same type used in United Air Lines' "Mainliners," is shown being demonstrated by a UAL radio engineer at the company's central maintenance base at Cheyenne, Wyo. It carries all the radio equipment installed on United's big planes, and is so wired that sending and receiving sets can be operated as in flight. It is used in making studies of possible changes without the necessity of holding an airplane out of service.

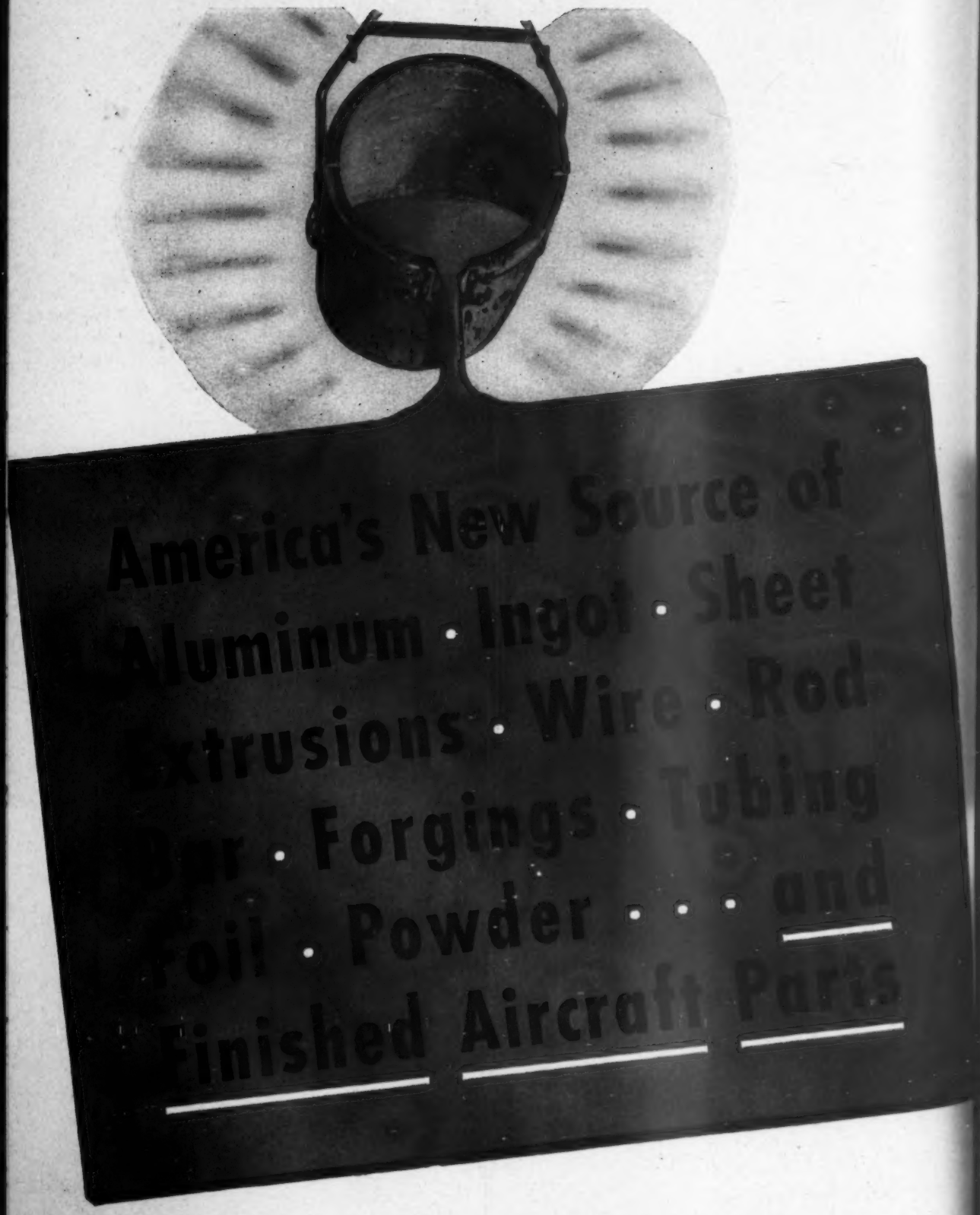
A New Fire Alarm

As a United Air Lines pilot was flying over the Indiana countryside one night last month, he noticed a large fire on a farm. He radioed CAA Aircraft Communicator J. A. Kott at the Rome City Airport, who relayed the information to local police who in turn relayed it to Columbia City via State Police radio. Although a silo, two straw stacks and a tool shed were destroyed, firemen arrived in time to save the house and barn.

THERE IS A PLACE FOR A SHINY NOSE

Calamity for the Axis is incubated in the "nose" of these Beechcraft Training Planes. Through the clear transparency of their plastic walls, the student bombardiers and gunners develop their shooting eyes and accurate aim. ★ ★ More transparent than glass, Aero-Quality Lumarith transmits light up to 92%, yet is stabilized to intercept the ultra-violet rays and improve weathering qualities. ★ ★ Lumarith has high impact strength — resists concussion of close-by explosion, the stress of violent air-pressure changes, and the shock of emergency landings. ★ ★ Lumarith Plastics, supply American aircraft with control knobs, first aid kits, ventilator tubes, instrument dials, radio parts, grommets, ammunition rollers, fuel gauges, etc. ★ ★ Celanese Celluloid Corporation, *The First Name in Plastics*, 180 Madison Ave., New York City 16, a division of Celanese Corporation of America Sole Producer of Lumarith* and Celluloid* plastics.... *Representatives:* Cleveland, Dayton, Philadelphia, Chicago, St. Louis, Detroit, Los Angeles, Washington, D. C., Leominster, Montreal, Toronto, Ottawa.

*Trade Marks Reg. U. S. Pat. Off.


America's New Source of
Aluminum • Ingot • Sheet
Extrusions • Wire • Rod
• Forgings • Tubing
Foil • Powder • • • and
Finished Aircraft Parts

Shortening the steps from Bauxite to Bomber . . . Having built the first and only plant in the country where bauxite comes in at one end and aluminum sheet rolls out the other, Reynolds now carries the process still farther . . . making finished *aircraft parts* right at the aluminum source.

Since scrap from these parts averages 30%, Reynolds pre-fabrication saves aircraft manufacturers valuable storage space and labor . . . saves America precious shipping space and inevitable waste in handling. Reynolds turns out finished parts, quicker...and puts the scrap "back into the scrap" immediately.

For "flying aluminum," call for a Reynolds Sales Engineer . . . available throughout the United States.

REYNOLDS METALS COMPANY

PARTS DIVISION • LOUISVILLE • KENTUCKY
GENERAL OFFICES • RICHMOND • VIRGINIA
38 PLANTS IN 13 STATES

Reynolds Aluminum and finished airplane parts start in this Arkansas bauxite mine. Reynolds mines more bauxite per year than had ever been mined yearly before the war in the United States.

Aerial view of Reynolds plant at Listerhill, Alabama. Here bauxite is refined into alumina; the alumina is reduced into aluminum; and the aluminum is cast, alloyed and fabricated into sheet and rod.

Reynolds rolled aluminum alloy forging stock, tested and Army-Navy inspected, ready to be forged into aircraft propellers.

View of the Reynolds 300,000 sq. ft. expansion of the Parts Division in Louisville. New equipment includes giant 5,000 ton hydraulic press.

Petroleum Research and War in the Air

One of a series of original Esso research developments that help give U. S. planes an edge in the air.

IN every gyro-instrument in a plane, the gyroscope is supported by ball-bearing assembly not much larger than a pencil eraser . . . made to tolerances of .0002". Even a microscopic speck of surface corrosion or abrasion spells ruin.

So at Sperry Gyroscope Company, pioneers of gyroscopic instruments, the need for a protective lubricant for these vital parts assumed the proportions of a major headache.

Sperry brought the problem where so many aviation-lubrication problems have wound up these past few years . . . to the Esso Laboratories.

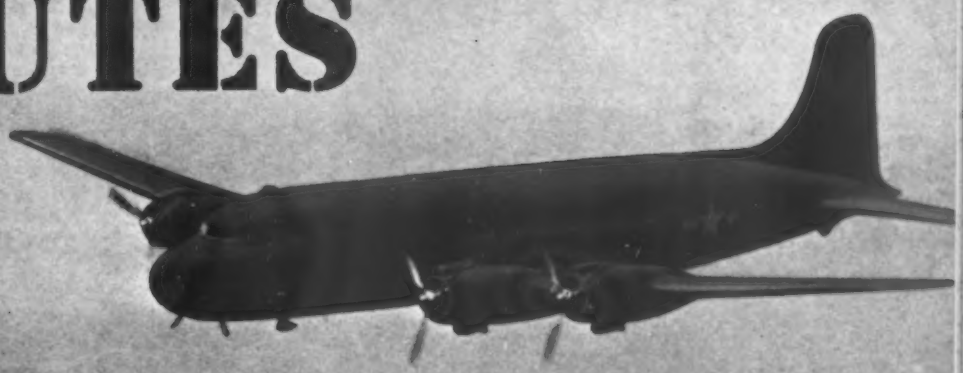
The result was an entirely new, low-viscosity, rust-preventive oil with which gyroscopes showed 250% to 350% longer life than before . . . and with atmospheric temperatures spread over more than 200 degrees!

Today this new oil—Esso Aviation Instrument Oil—is being recommended for all exacting aviation jobs needing a highly refined, low viscosity oil, as well as in distributors, generators, electric motors.

No nation on earth has come near this country's skill in development of petroleum products for aviation. And we take pride that one important reason is the air-minded, forward-looking research of Esso labs, working with America's aviation people down through the years.

*ARMY-NAVY SPECIFICATION AN-O-4

BIG BRUTES



Douglas builds all three

When United Nations air strategy called for concentration on heavy bombers and transports, only Douglas was chosen to produce all three current 4-engine types: Douglas' own C-54 Skymaster Combat Transport (center), the B-17 Flying Fortress (top) and the B-24 Liberator Bomber. Douglas production of these "big brutes" has been on schedule or ahead of schedule, in addition to fabulous output of more other types of aircraft than any other manufacturer.

DOUGLAS

DOUGLAS AIRCRAFT CO., Santa Monica, Calif.

LONG BEACH, CALIF. EL SEGUNDO, CALIF.
TULSA, OKLAHOMA OKLAHOMA CITY CHICAGO

3rd WAR LOAN

BACK THE ATTACK—WITH WAR BONDS

Applications for Routes Continue to Swamp Board

NINETEEN new route applications or requests for stops in existing routes were filed with the Civil Aeronautics Board during the period of Aug. 11 to Aug. 25 inclusive, thereby continuing the accelerated filing pace which has hit new heights in recent weeks.

The usual high number of applications by present truck line operators were filed. Included in the applications was one which would provide a fly-away service similar to the haul-away service for new automobiles. An application by Northwest Airlines provides for stops at the great Japanese naval base at Paramushiro, Kurile Islands and at Tokyo itself.

Names of the 19 applicants and a brief summary of their routes follow:

American Airlines

Summary of the American application for foreign routes is found on page 50.

Braniff Airways, Inc.

This company seeks permission to amend its present certificate for Route 9 authorizing it to engage in air transport of persons, property and mail between the terminal point Chicago and the intermediate points of Michigan City, Ind., Elkhart, Ind., Adrian, Mich., and terminal point, Detroit.

Carolina Scenic Coach Lines

Routes between Jacksonville, Fla. and Cincinnati, with an alternate route between Augusta, Ga. and Bristol, Va. is sought by Hamish Turner and Robert Fletcher Turner, associated in the operation of both the Carolina Scenic Coach Lines and Carolina Stages. They would transport passengers, mail and property.

Coast Aviation Corp.

Many small towns in California would be given service under the application filed by Coast Aviation Corp., of Eagle Field, Dos Palos, Cal. which asks for a certificate to transport mail, passengers and property between Oakland, Cal. and Burbank, Cal. via Watsonville, Salinas, Monterey, King City, Paso Robles, San Luis Obispo, Santa Maria, Santa Barbara, Ventura and Oxnard on one route and between Burbank, Cal. and Reno, Nevada via Lancaster, Mojave, Lone Pine, Independence and Bishop, on the other.

Denco Bus Line, Inc.

Helicopters and gliders would be used by Denco, of Ada, Okla. if its application to transport mail, passenger and property in scheduled and unscheduled operations is approved. The service is proposed between Tulsa and Roswell, N. M., Oklahoma City-Little Rock, Oklahoma City-Hot Springs and Tulsa-Hot Springs. Company is now engaged in bus transportation between Ada and various Oklahoma points.

Arthur J. Heiser

This applicant, whose address is 10 Hawthorne Ave., Floral Park, L. I., N. Y. would use helicopters for transporting mail, passengers and property between New York and Montauk, L. I. via Freeport, Babylon, Bayshore, Fire Island, Patchogue and Southampton, a distance of 112 miles.

Jackson, Jackson and Drapela

A co-partnership consisting of Marvin R. Jackson, J. Perry Jackson and Edward E. Drapela, 204 S. 7th St., Grand Junction, Colo. proposes to fly visual contact day operations in Colorado, Utah, and New Mexico, using Cessna, Lockheed and Beechcraft planes. The proposed routes are:

1. Grand Junction, Colo., to Albuquerque, N. M., 404 miles, via Delta, Montrose, Durango, Colo., and Gallup, N. M.

2. Grand Junction to Salt Lake City, Utah, 241 miles, via Price and Provo, Utah.

3. Grand Junction to Craig, Colo., 173 miles, via Meeker, Glenwood Springs and Rifle.

Total assets of the partnership are listed at $157,000 and liabilities at $16,000. The Jacksons own several bottling works in Colorado and Arizona. Drapela is manager of Grand Junction airport and operator of a WTS Navy elementary school.

Mid-Continent Airlines, Inc.

Under this company's application, mail, persons and property would be transported between the terminal point of St. Louis, Mo., and the terminal point of Detroit, via the intermediate point of Ft. Wayne, Ind. The total air miles involved is 466.

Midwest Haulers, Inc.

Freight is listed as the principal commodity to be transported by Midwest Haulers Inc., 838 Edison Building, Toledo, Ohio, in an application covering the following terminal points: New York, N. Y.; Cleveland, Chicago, Pittsburgh, Philadelphia, Washington, D. C. and Baltimore.

Mutual Trucking Co.

This company, with offices at 838 Edison Building, Toledo, Ohio asks permission to transport cargo between Chicago and Minneapolis and St. Paul, with Milwaukee, Wis. as an intermediate stop. The application was filed by Loren Hendrix, president of the trucking concern.

Northwest Airlines, Inc.

Northwest's new routes to the Orient, including Tokyo, is found on page 50.

Nu-Planes Flyaway Service, Inc.

The complete story on this new proposed service in the field of aviation is found on page 52.

Pennsylvania-Central Airlines

This company filed for seven routes between Washington and Boston as follows:

1. Washington-Boston direct.

2. Washington-Boston via Newark and New York.

3. Washington-Boston via Baltimore, Wilmington, Philadelphia, Trenton, Newark, New York, Bridgeport, New Haven, New London, Fall River, New Bedford, Providence and Brockton, Taunton, Attleboro.

4. Washington-Boston via Baltimore, Wilmington, Philadelphia, Trenton, Newark, New York, Bristol, Meriden, Waterbury, New Britain, Hartford, Springfield and Worcester.

5. Washington-Boston via Newark, New York, New Haven and Providence.

6. Washington-Boston via Newark, New York, Hartford and Providence.

7. Washington-Boston via Newark, New York and Hartford.

Company also asks any alternate combinations which the Civil Aeronautics Board may deem proper.

Peter Pan Bus Lines

This bus company would use a helicopter or similar aircraft between Boston, Albany and New York, N. Y., if its application is approved. The application was filed by Peter Picknelly, 144 Bridge Street, Springfield, Mass., operator of the bus line. Mail, persons and property would be transported over the following routes: (1.) Boston to Albany, N. Y., via Worcester, (2.) Boston to Albany, via Hartford, (3.) Boston to New York, via Providence, (4.) Boston to New York, via Hartford, (5.) Boston to New York, via Springfield, (6.) Albany, N. Y., to Providence, R. I., (7.) Albany, N. Y., to New Haven, Conn.

Ringsby Truck Lines, Inc.

This truck company with offices at 3262 Blake Street, Denver, Colo., asks permission to transport freight between the following terminal points: Chicago, Sioux City, Ia., Omaha, Neb., Denver, Grand Junction, Colo., Salt Lake City, Los Angeles and San Francisco. J. W. Ringsby is president of the trucking concern.

Schreiber Trucking Co.

Routes sought by this trucking company whose offices are located at 1391-1397 Washington Boulevard, Pittsburgh, for transportation of freight only are as follows: Pittsburgh and Washington, D. C.; Pittsburgh and Baltimore; Pittsburgh and Philadelphia; Pittsburgh and New York City via intermediate point of Newark; Pittsburgh and Boston; Pittsburgh and Albany; Pittsburgh and Rochester, N. Y.; Pittsburgh and Buffalo; Pittsburgh and Chicago and Pittsburgh and Cincinnati. Samuel Schreiber and Mrs. Harry Schreiber operate the trucking company.

Southeastern Air Express Inc.

Southeastern Air Express Inc., a subsidiary of Georgia Air Service Inc., operators of Army Air Forces Flying Training Detachments at Bennettsville, S. C. and Jackson, Tenn., has filed application for 4,100 miles of feeder routes as follows: Atlantic - Memphis, Atlanta - Tallahassee, Atlanta - Florence, Savannah - Raleigh - Savannah, Savannah-Jackson, Nashville-Savannah, Memphis-New Orleans, Atlanta-Pensacola and Columbus-Jacksonville. Stops in 91 southern cities are proposed. Twin-engined equipment would be used on passenger schedules, with single-engined planes used for mail-cargo

(Turn to page 50)

Making plans for post-war airport fueling?

American Airlines flagship being fueled from an Aqua fueling pit at Monterrey Airport, Monterrey, Mexico.

TAKE A TIP from this progressive airline. Looking to the future of commercial aviation and its demand for maximum efficiency of operations, American Airlines engineers made their own critical study of airport fueling.

Backing their findings with their own investment, American Airlines installed the Aqua system . . . thereby effecting savings on both fuel handling and plane operation.

The extremely volatile lighter ends of expensive high octane gasoline can not be dissipated in storage and fueling. The tanks are automatically kept filled, leaving no space for gasifying of the fuel.

Explosion hazards are overcome since there is no opportunity for gases to mix with air.

Any moisture in the gasoline, together with sediment, must settle to the bottom of the tank. Only *clean, dry, full-powered* fuel can be delivered to the plane.

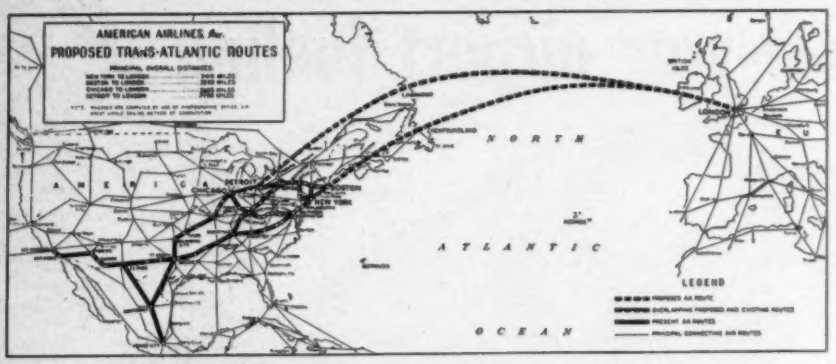
Airport and oil company engineers seeing ahead greater demands upon airport facilities will want to familiarize themselves with the Aqua system. They are invited to write for the Aqua manual, "Delivering the Fuel."

AQUA *Systems*

AQUA SYSTEMS, INCORPORATED
382 Gerard Avenue, New York 51, N.Y.
(Subsidiary of Neptune Meter Company)

2111

American Asks NY-London, Chicago-London Air Routes



International air routes between New York, Boston and London, and Chicago, Detroit, Boston and London were asked by American Airlines on August 25 in an application filed with the Civil Aeronautics Board.

The action followed the recently declared intention of 16 of the domestic airlines, including American, to engage in international operations.

Selection of New York-London and Chicago-London was the result of the company's study of foreign routes by which it determined it was "in a position most appropriately to operate economically and efficiently in the public interest and where the requirements of public convenience and necessity appeared to be greatest in relation to its domestic system," the announcement said.

It added that American is presently in a favorable position to provide service between the cities that it now serves and North Central Europe, and with the granting of a request for consolidation of certain of its domestic routes will be in an even more favorable position to operate with "efficiency and economy and provide these cities with schedules meeting the maximum requirements of public convenience and necessity."

Routes applied for are across the North Atlantic following a Great Circle course. As alternate to London, American asks a Paris stop. In addition, "service" stops are asked in Newfoundland, Labrador, Ireland, Iceland, Bermuda and the Azores.

New Route Applications

(Continued from page 48)

runs. Officers and members of the board of directors are H. T. Dobbs, Atlanta, chairman of the board; E. Cody Laird, Atlanta, president; Ben T. Smith, Jackson, Tenn., vice president; Walter James Jr., Atlanta, Secretary and treasurer, and Clement A. Evans, a member of the board. Company's address is P. O. Box 4207, Atlanta 2, Ga.

Thomas Air Service

Operator of a flying school for training of students, Thomas Air Service, of Farmington, N. M., seeks to transport passengers, property and mail on feeder lines in both directions from Farmington connecting with TWA and Continental at Albuquerque, N. M., and with United Air Lines and Western Air Lines at Salt Lake City. Intermediate points to be served are Price and Moab, in Utah, Cortez and Durango in Colorado. The company would use Waco Standard planes.

Virginia Central Airline

Abe Cohen and Wulbert G. Burnette, in the name of the above company, have added 22 routes to the original application filed with CAB. The company is located in Lynchburg, Va., and the principal points to be served on the 27 routes follow: *Route 1*—Lynchburg, Va. to New York, N. Y., 395 miles. *Route 2*—Between Lynchburg & Mobile, Alabama, 784 miles. *Route 3*—Between Lynchburg & Atlanta, Ga., 425 miles. *Route 4*—Between Lynchburg & Atlanta, Ga., 453 miles. *Route 5*—Between Lynchburg & Chicago, 595 miles. *Route 6*—Between Lynchburg & Cincinnati, 468 miles. *Route 7*—Between Lynchburg & Norfolk, 170 miles. *Route 8*—Between Lynchburg & Norfolk, via Danville, 243 miles. *Route 9*—Between Lynchburg & Norfolk, via Richmond, 230 miles. *Route 10*—Between Lynchburg & Alexandria, Va., via Charlottesville, Va., 157 miles. *Route 11*—Between Lynchburg & Alexandria, via Staunton, Va., 257 miles. *Route 12*—Between Lynchburg & Bristol, Va.-Tenn., 180 miles. *Route 13*—Between Lynchburg & Bristol, via Bluefield, W. Va., 266 miles. *Route 14*—Between Lynchburg & Charleston, W. Va., 179 miles. *Route 15*—Between Alexandria, Va. & South Norfolk, Va., 206 miles. *Route 16*—Between Richmond & Lexington, Va., 132 miles. *Route 17*—Between Richmond & Roanoke, Va., via Danville, 233 miles. *Route 18*—Between Danville, Va. & Bluefield, W. Va., 138 miles. *Route 19*—Between Lynchburg & Greensboro, N. C. via New Bern, N. C., 493 miles. *Route 20*—Between Raleigh, N. C. & Columbia, S. C., 266 miles. *Route 21*—Between High Point, N. C. & Augusta, Ga. via Columbia, S. C., 316 miles. *Route 22*—Between Greensboro, N. C. & Columbia, S. C. via Asheville, N. C. and Greenville, S. C., 406 miles. *Route 23*—Between Salisbury, N. C. & Spartansburg, S. C., 139 miles. *Route 24*—Between Augusta, Ga. & Greenville, S. C. via Atlanta, 309 miles. *Route 25*—Between Augusta, Ga. & Mobile, Ala. via Macon, Ga. & Columbus, Ga., 445 miles. *Route 26*—Between Bristol, Va.-Tenn. & Knoxville, Tenn., 179 miles. *Route 27*—Between Charlotte, N. C. and Spartansburg, S. C., 118 miles.

Northwest Seeks Route to Tokyo

A postwar route to Tokyo, Japan, and other points in the Orient was asked by Northwest Airlines in an amended application filed Aug. 20 with the Civil Aeronautics Board.

In addition to Tokyo, Northwest would serve the strong Japanese naval base of Paramushiro, Kurile Island.

Routes sought by the company are (1) Anchorage, Alaska, to Manila, Philippine Islands, via Dutch Harbor, Kiska, Attu, Paramushiro, Tokyo and Shanghai; (2) Anchorage-Calcutta via Dutch Harbor, Kiska, Attu, Paramushiro, Tokyo, Darien, Peiping and Chungking; (3) Seattle-Manila via Anchorage, Dutch Harbor, Kiska, Attu, Paramushiro, Tokyo and Shanghai, and (4) Seattle-Calcutta via Anchorage, Dutch Harbor, Kiska, Attu, Paramushiro, Tokyo, Darien, Peiping and Chungking.

Extensions already sought by Northwest in other applications (to New York and Washington) would result in establishment—if granted—of a 10,151-mile line from New York to Calcutta.

Urging that "affirmative action on the proposed program be taken now," Croil Hunter, NWA president, said: "It is of paramount importance that Northwest Airlines and all of the communities involved be enabled to go forward with their postwar planning now, so that when the present war activities are over, their energies may be utilized in a way which will contribute most to the reconstruction and rehabilitation of our country and the rest of the world.

"The commercial importance of Alaska immediately after the close of the war, as a crossroad of air routes to the Orient, will require as much air transportation service as can be made available as soon as possible."

Airlines Ease Window Blackout Regulations

Airlines throughout the country were putting into effect last fortnight less stringent regulations covering cabin window "blackout" procedures.

At very few airports are curtains now drawn during landings and takeoffs. Restrictions still apply, however, when the plane is flying over areas where military information or defense plant activity not otherwise available to the general public might be disclosed.

Meridian Stop Resumed

CAB on Aug. 16 authorized Delta Air Corp. to resume service to and from Meridian, Miss.

EYES UPSTAIRS!

On many fighting fronts of the world, our tank destroyers often count on the Piper L-4 "Grasshopper" to help spot enemy tanks. Serving as the "Eyes Upstairs," the Piper L-4 flashes instructions by radio to the tank destroyers, directing their courses and fire.

The plane's ability to fly low, land quickly almost anywhere and hide easily enables it to play an important part also in the Artillery, Cavalry and Infantry. It acts as a scout, directs troop movements, transports officer personnel and delivers messages.

The advantages of the Piper L-4 in wartime will prove invaluable also in peacetime. Then, in your smart, new Piper Cub you'll hop around the country on vacation and business trips with the greatest of ease, pleasure, safety and economy.

FREE BOOKLET ON HOW TO FLY. Send today for your copy of "You, Too, Can Fly!" If you also want the full-color Piper catalog, enclose 10c in stamps or coin for postage-handling. Piper Aircraft Corporation, Dept. AA93, Lock Haven, Penna.

16mm. SOUND FILM—"The Construction of a Light Airplane." For distribution points write: Supervisor, Audio-Visual Aids, Extension Services, Penna. State College, State College, Penna.

PIPER *Cub*

Points the Way to Wings for All Americans

CAB Calendar

SEPT. 8—Hearing on New York-Boston applications of **United, TWA, Colonial, Western, Seaboard, Northwest, American, & TWA-New England, Inc.** (Tentative date).

SEPT. 10—**Pan American-Grace Airways** hearing on CAB show cause order affecting air mail rates. (Tentative).

SEPT. 13—**TWA, Eastern, Chicago & Southern,** pre-hearing conference on application for routes into Detroit.

SEPT. 13—**American,** pre-hearing conference on application to stop at Akron.

SEPT. 15—**Pan American-Grace Airways,** hearing on U. S. terminal. (Tentative date).

SEPT. 25—**TWA** hearing on its application to include Columbia, Mo. on its transcontinental route from New York to Los Angeles.

SEPT. 28—Feeder-pickup investigation. (Tentative date).

Applicant Wants to Fly New Airplanes to Buyers

Nu-Planes Flyaway Service, 852 McGrath Highway, Somerville, Mass., has filed an application with the Civial Aeronautics Board for a certificate to perform a delivery service between the manufacturer of planes and the distributor or buyer.

Lester J. Lishon, Sr. is president of this newly formed company and is also head of two companies now engaged in haul-away services for new automobiles. The one company—University Overland Express Inc.—is located at 852 McGrath Highway, Somerville, Mass. the other—the Nu-Car Carriers, Inc. is located at Front and Pennell Streets, Chester, Pa. A third company, also headed by Lishon, is the Dairy Transport Co. which engages in the transport of dairy products.

Lishon, in his application, states he has never before been engaged in any phase of aeronautical activity. Due to the nature of the proposed activity, Lishon states it is impossible to charter the routes to be traversed. Lishon states that his company will furnish all of the pilots for the operations.

Laredo Line Okayed

Braniff Airways has been informed by the Civil Aeronautics Board that temporary suspension of service between San Antonio and Laredo is no longer required in the public interest. When Braniff was awarded the extension, CAB had stated that service could not be opened until national defense requirements permitted. Braniff serves Laredo through the Laredo Army Air Field.

Airline Commentary

Aug. 16 was an eventful day for Washington—it acquired two more airlines, as TWA and United opened their new routes into town . . . Have you ever been to an airline breakfast at 5 o'clock in the morning? . . . Pat O'Malley, who handles a little publicity here and there for TWA, called us up, said their first plane was coming into Washington at 5:37 A.M. Aug. 16 and would we please come to breakfast at the airport at 5 o'clock . . . Dazedly we accepted, calling her back later to make sure we had been hearing correctly . . . Our reflexes were considerably slowed down at that hour, but we made it . . . The plane was late, as planes will be in these busy times, and it arrived at 6:27, just as the sun came up . . . And we got a thrill out of seeing history being made . . . That first flight carried 19 priority passengers, only one of whom was a civilian . . . If that doesn't emphasize the airlines' part in the war effort, we don't know what does . . . Incidentally, breakfast at 5 is not recommended as a steady diet . . .

●

Then, in the afternoon came United, loaded to the wingtips with passengers, including a lot of priorities . . . Capt. E. Hamilton Lee, with more than 3,500,000 miles of flying behind him, was at the controls, making the trip from Chicago in 3 hrs. 40 min. . . . Mrs. Jimmy Doolittle christening the UAL plane was a smart idea, too . . .

●

It seems that we've been ignorant all these years . . . Two issues ago we made a nasty crack about airport limousine drivers and said we thought we'd sell insurance to limousine passengers . . . G. Shannon Grover, of Stewart, Smith (Canada) Ltd., insurance brokers, wrote in and informed us that airline trip insurance in Canada covered both the ride to the airport and the flight . . . So far so good, but a few days later Denis Murray, TWA's wide-awake district traffic manager in Washington, gives us a ring to say that the same thing applies in the U. S. . . . He quoted from the trip insurance contract, which says you're covered in flight "or while en route in or on land conveyances provided by, or under the control of, said scheduled airline between the airport of departure or arrival and the city or town such airport serves including such injury resulting from an accident sustained at either of said airports while in due course of transit" . . . Also, you're covered on "any railroad train or steamship provided by common carrier for passenger service wherever operated, subject to all conditions and limitations herein contained" . . . So we admit our ignorance, but if we're ignorant so are 95% of the airline passengers today . . . And we bet they'd like to know they're covered while riding the limousines . . . So why don't the airlines publicize it? . . . (Now somebody will write in and tell us that it is publicized and off we'll go again) . . .

●

A couple of issues ago we reported that new route applications totaled 350,777 miles (it's now over 400,000) . . . S. Burton Heath, NEA editorial writer picked up the story and in an editorial entitled "Come, Josephine" said: "Have you filed your application for a postwar airline from here to there? It doesn't need to be very specific; you can always decide later where you want to start, which way you intend to go, and where you hope to wind up. Neither is it required that you know anything about flying, or traffic, or aviation management, or that you have a plane, money or backers. A piece of paper, a pencil, a three-cent stamp and imagination will do the trick." . . . Heath concluded by saying that "all is confusion, all is ambition, all is aspiration and enthusiasm in the postwar aviation field. But of one thing we can be sure—a new flying era is no further away than the time it will take to clean up the Axis and shift our industrial stance" . . .

●

One of our west coast spies comes through with this one . . . Jack Adams, western publicity director for American Airlines, while on a business trip to San Francisco telemetered his assistant, Bobbie Valentine, at Los Angeles headquarters: "Please engage fotog for Saturday. See Milliken" . . . The AAL message center, unaware that "fotog" is newspaper jargon for photographer, promptly decoded the word . . . So it was a very bewildered assistant who spent some time trying to figure out just what the boss wanted by "Please engage Flight 60 for Tuesday the Seventh. See Milliken . . ." Seems as though "fotog" decodes to "Flight 60 for Tuesday the Seventh" . . .

●

A swell dinner for a swell guy was given at Washington National Airport on Aug. 19 . . . It was for Johnny Groves, who has resigned as airport manager to join the Air Transport Association . . . We join all Johnny's other friends in wishing him the best of luck in his new job . . .

E. B.

RELAYS BY GUARDIAN...

★ **The smooth operation of rail and airlines depends largely upon efficient traffic control systems. Split-second response, unfailing operation, and a minimum of maintenance are characteristics of these systems.**

The Series 5 D.C. and the Series 10 A.C. relays are adaptable to numerous signal system applications. Both A.C. and D.C. types are sensitive and require but a minimum of power. Contacts are adjustable; switch capacity ranges up to double pole double throw. Series 5 D.C. relay consumes a minimum of .01 watts, maximum 5.5 watts. Delayed attract or release is available on this unit. Series 10 A.C. requires an average of 5 VA; minimum .3 VA with single pole single throw contacts of 1.5 amp. capacity.

Write for Series 10 bulletin for A.C., or Series 5 bulletin for D.C. applications.

Series 10 A.C. Relay

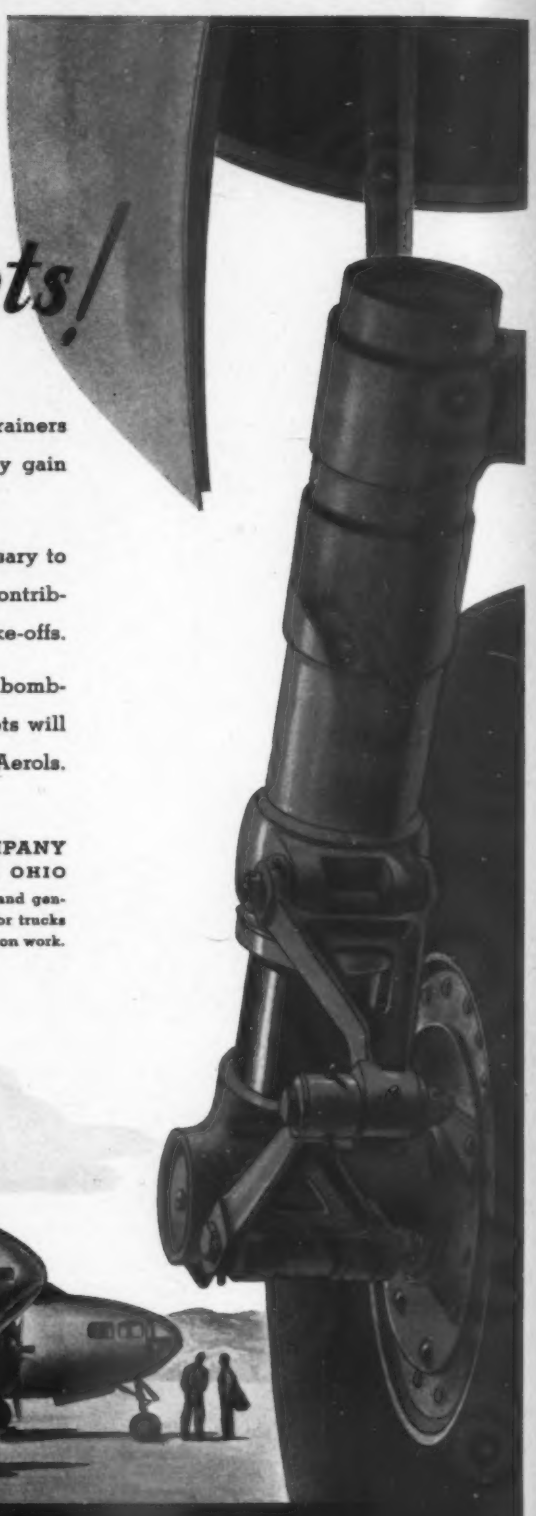
Special base. (Round base is standard.) Dimensions: Length 3-9/32"; Width: 2-3/8"; Height 2-7/32". Weight: Approx. 11 ounces with cover.

GUARDIAN ELECTRIC

1608-K WEST WALNUT STREET — CHICAGO, ILLINOIS

A COMPLETE LINE OF RELAYS SERVING AMERICAN WAR INDUSTRY

"Legs" for Eaglets!



● Flying these Fairchild "Gunner" crew trainers equipped with Aerols, fledgling pilots rapidly gain confidence in their "landing legs."

Aerols help these pilots gain the skill necessary to become formidable war birds because they contribute to safe, smooth landings and swift, sure take-offs.

When they advance to combat service—flying bombers, fighters and transports—these trainer pilots will again benefit by the matchless performance of Aerols.

●

THE CLEVELAND PNEUMATIC TOOL COMPANY
AIRCRAFT DIVISION • • **CLEVELAND, OHIO**

Also Manufacturers of **Cleco pneumatic tools for the aircraft and general industry, Cleco sheetholders, Cle-Air shock absorbers for trucks and buses, and Cleveland rock drills for mining and construction work.**

AEROLS*

*THE SHOCK ABSORBING UNITS ON AN AIRPLANE'S LANDING GEAR; THE NAME IS DERIVED FROM THE WORDS "AIR" AND "OIL"—THE FLUIDS USED TO DISSIPATE THE LANDING SHOCKS

Tax 'Evasion' Denied By National Airlines

Emphatic denial that National Airlines had incurred unusually heavy expenses in June in order to avoid becoming liable under the excess profits tax law was made Aug. 16 by William I. Denning, attorney for the company.

In oral argument before the Civil Aeronautics Board on National's air mail rate case, Hardie Macclay, public counsel, claimed that June had been a completely "abnormal" month for the company. Expenses, he indicated, were out of line with previous months.

He pointed out that National had net income before mail pay of $22,417 and non-operating income of $37,281, making total net of $59,698 for the year ended June 30, 1943. Had this income been $62,698, National would have been forced to pay an excess profits tax, he said, claiming that "abnormal" expenses were all that kept the carrier out of this tax class.

As an example, he cited general and administrative expenses in June of $40,656, compared with an average of $7,000 to $11,000 in previous months. Overall expenses in June, he said, were 45.8% above average, and National was operating only two planes instead of the usual three, one being laid up for repairs.

Unless National can satisfactorily explain the high June expenses, they should be disallowed in fixing a mail rate, he urged.

Macclay also claimed that had National's advertising expenses been lower during the first half of the year, some losses would have been eliminated.

Oral argument was held on the Board's order asking National to show cause why its mail rate should not be set at .3 mill per pound mile. Macclay said the company would receive an adequate return on investment under such a rate.

Denning, denying the charges, pointed out that June is the last month in National's fiscal year and that unusual expenses are always shown in such a month. Legal fees shown in that month may represent bills for long back periods, he said.

Not knowing what changes Congress may make in the excess profits tax law, it would be impossible for National or any other carrier to evade that law, Denning asserted.

If the Board wishes to reopen the rate case, National will submit evidence on the legitimacy of all June expenses, he added.

He argued for a minimum rate per mile for the smaller airlines, stating that if NAL is to be paid on a pound-mile basis it should receive at least .4 mill for a load of 400 lbs., regardless of whether or not such load is carried.

Denning agreed with CAB Member Harllee Branch that if the Board found a carrier boosting expenses to avoid the tax law, such expenses should be disallowed and the Board should investigate the carrier's honest, economical and efficient management.

At End of TWA's 1st Washington Flight

Capt. Ray Wells, left, chief pilot of TWA's Atlantic division, being congratulated by John Groves, manager of Washington National Airport, after landing the first TWA flight at Washington on Aug. 16. In the center is TWA First Officer J. D. Officer.

United Plane Gets Novel Christening

By attaching a miniature flag to a picture of the national capitol building painted on the Mainliner's nose, Mrs. Jimmy Doolittle christened the first United Air Lines' plane to operate into Washington. Ceremonies took place at Washington National Airport on Aug. 16 shortly after the first UAL plane had landed. It was christened "City of Washington, D. C." Shown with Mrs. Doolittle, wife of the famous flying general, are Stewardess Loretta Nazar and Capt. E. Hamilton Lee, veteran UAL pilot.

New TWA Agency Selected

Transcontinental & Western Air, Inc., has selected Arthur Kudner, Inc., New York advertising agency, to handle its advertising, effective Nov. 1.

Frye Named

Jack Frye, president of TWA, has been named vice chairman of the Airlines Committee for U. S. Air Policy. Samuel J. Solomon, president of Northeast, is chairman. The committee has begun the preparation of material to give widespread publicity to its declaration of policy on postwar international air operations. Each of the 16 signatory airlines will distribute the material.

Creates Load Control Division

Chicago & Southern Air Lines has established a new traffic divison known as the Central Traffic and Load Control Center. It is located in Memphis, Tenn., and controls the utilization of payload on all flights in a manner which will produce the most revenue. C & S claims that by centralizing control of payload in one office under the direction of experienced personnel, passengers, mail, and express can be handled more accurately.

Transcontinental Air Cargo Schedule Started by American

Inauguration of a transcontinental flight for mail and express only was announced by American Airlines on Aug. 20.

The flight, which operates on regular schedule between New York and Los Angeles, carried heavy loads both ways on its first trip. When it arrived in Washington westbound, 2,177 lbs. of mail and 1,889 lbs. of express were on board. Eastbound, the ship's peak load was 2,778 lbs. of mail and 1,984 lbs. of express.

Now able to switch heavy mail and express loads onto this flight, American will be able to break some of the bottlenecks along its transcontinental route.

Only two other companies have operated cargo schedules of any importance. Eastern Air Lines at present flies a daily round trip cargo schedule between New York and Miami. United Air Lines has operated a similar schedule between New York and Salt Lake City.

American's new trip leaves New York at 11:30 p.m. westbound, and Los Angeles at 12:55 a.m. eastbound, both departures enabling the flight to "clean up" mail and express deposited after the close of the business day. The trip stops at Washington, Nashville, Memphis, Dallas, Ft. Worth, El Paso and Phoenix.

The plane used on the cargo flights is a regular DC-3. Passenger seats have not been removed. In addition to using the cargo compartments, mail and express is also carried in the seats, by the use of canvas cargo containers.

To accommodate the new flights, schedules for two of American's daily transcontinental passenger flights have been changed. Flight 8, the Southerner, now leaves Los Angeles at 12:45 a.m. instead of 11:10 p.m., and arrives in New York at 10:35 p.m. Westbound flight 37 leaves New York at 1:40 a.m., instead of 11:35 p.m., arriving Los Angeles at 7:31 p.m.

Why Planes Are Needed

Why the airlines need more planes: 115 tons of air mail are now being dispatched every day to planes from the post offices in cities which are airline stops. There are only about 165 planes to carry this mail, and all of them are not in service at the same time. Chicago alone dispatched 1,070,000 lbs. of air mail in July, an all-time record.

Prospects Brighter for Return of More Airline Equipment

The Army Air Forces is expected to turn back to the domestic airlines enough airplanes during the remainder of this year to break some of the more serious bottlenecks now existing. In addition, it is probable that additional equipment will be allocated to airlines serving Latin America.

The exact number of planes to be returned to the domestic lines has not been announced, but Washington officials were mentioning figures between 24 and 30. Release of the equipment, they said, would be spaced more or less evenly over the remaining months of the year.

Meanwhile, Post Office Dept. officials flatly denied having stated that 165 planes would be returned to the airlines soon. A wire service story on Aug. 17 said that "the Army will soon return all of the 165 planes it borrowed from the commercial airlines in June, 1942, a spokesman for the Post Office Dept. said tonight."

So far, the airlines have received 10 planes—two DC-3s to American (one of which was a replacement for the ship destroyed in a recent accident), two Lodestars to Mid-Continent, one Lodestar to National and one DC-3 to each of the following: TWA, Northwest, Pennsylvania-Central, Western, and Delta.

These planes are already helping to break some of the existing bottlenecks. American, for instance, has instituted a transcontinental cargo-mail schedule which is expected to alleviate considerably the congested condition on the company's transcontinental route.

Law Named Manager of National Airport

Hervey F. Law, regional supervisor of airports for the New York region of the Civil Aeronautics Administration, was named manager of the Washington National Airport, Washington, D. C., August 24. He succeeds John Groves, who managed the airport since it was built in 1941 and who recently resigned to become head of the operations division of the Air Transport Association.

Law has been engaged in airport work for the Department of Commerce and the CAA since 1933. Born in Springfield, Mass., in 1898, he embarked on an aviation career in 1914 while a student at Springfield Technical high school when he built and flew his own glider. He was a civilian flying instructor for the U. S. Army Air Corps at Mineola, N. Y., in 1917, and later worked as an engineering draftsman for the Wright-Martin Aircraft Corp. He also has been a designer of airports for various architectural firms.

Law was graduated from Massachusetts State College in 1922. He is married and has three children.

PCA Adds Two Trips

Pennsylvania-Central Airlines announces two additional round trips daily from Washington through Pittsburgh, Youngstown, and Cleveland to Detroit, with an additional connection with Norfolk, Va. This links the vital industrial section to Washington with eight PCA flights a day and four trips daily to Norfolk.

New Orleans Route Approved

The national defense no longer requires that the inauguration of service between New Orleans, Baton Rouge, Alexandria and Shreveport be delayed, the CAB told Delta Air Corp. on Aug. 16. Delta was awarded the extension on May 10.

Shadle Sees Uniform Liability for Airlines

Declaring that aviation cannot advance further under a mass of conflicting state laws, Webb Shadle, general counsel of the Civil Aeronautics Administration, predicted on Aug. 24 that the Federal Government would assume jurisdiction over all U. S. airspace and establish uniform liability for air carriers.

"Were all the states to adopt the same uniform body of law to govern aviation," Shadle said, "even though a bad body of laws, the uniformity in itself would remove conflicts and the air carriers would know the worst to expect at breakfast time."

But, he indicated, this is too much to expect, for a Uniform State Sales Act was submitted to the states in 1907, and thus far has been adopted by only 30 states.

He declared that Federal establishment of uniform liability would make it unnecessary for the United States Government to enter the aviation insurance business, but warned that if the insurance companies did not provide satisfactory coverage, there might be self-insurance by the airlines, government subsidy or regulation of insurance companies.

Shadle spoke before the American Bar Association in Chicago.

SEC Hearing Set

The Securities and Exchange Commission has announced that a hearing will be held Sept. 7 on the application of Trans-Oceanic Air Lines Inc. for an order exempting it from the provisions of the Investment Company Act of 1940. Hearing will be held in Room 318, SEC Bldg., 18th and Locust Sts., Philadelphia. Trans-Oceanic was formed several months ago by pilots, most of whom are now flying for the British Air Transport Command. The company proposes to have flight crews ready for operations immediately upon cessation of hostilities.

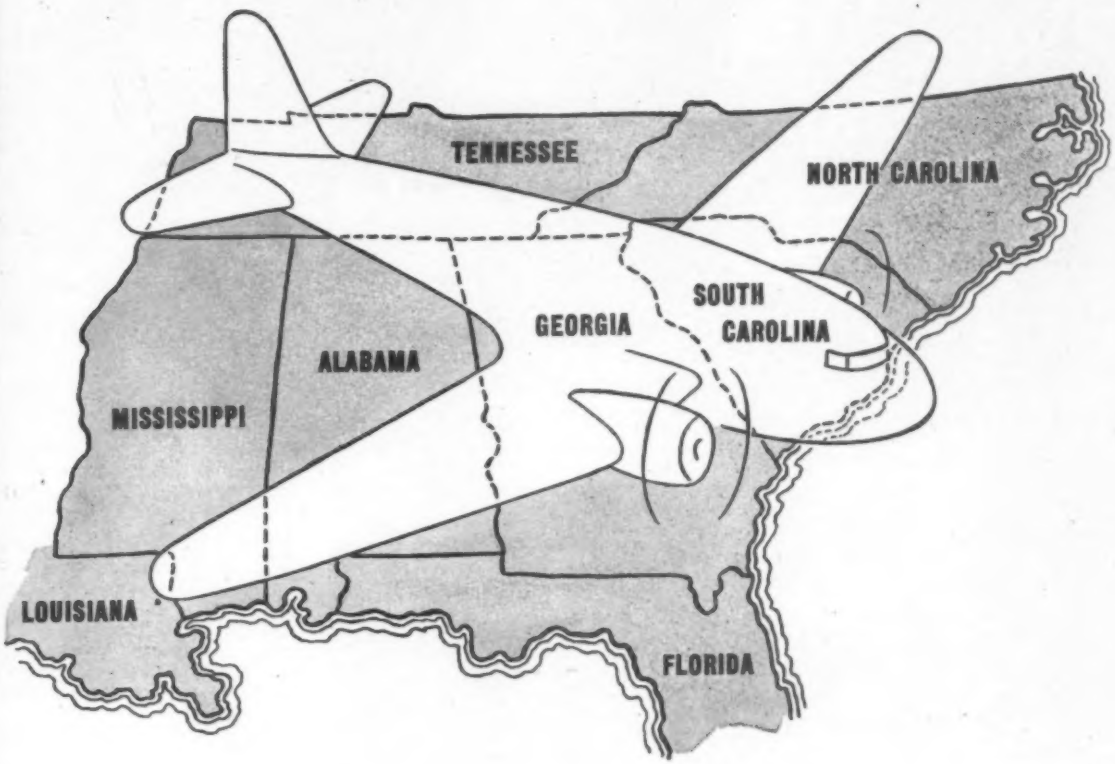
Aerial Newspaper Published

The first edition of "Northeast Minute-Man," an aerial newspaper containing last minute national and international news, recently was handed to passengers aboard Northeast Airlines' Flight No. 4, bound for Canada from Boston. Editions of the paper tie in closely with flight schedules, and are produced simulaneously at all of the airline's commercial terminals throughout New England and Canada. In addition, they are relayed by plane to Northeast's stations in the Arctic and across the North Atlantic.

New CAL House Organ

Continental Air Lines has started publication of a new house organ, entitled *The Continental Eagle*, under direction of Kenneth E. Allen, public relations director.

THINGS TO COME



To serve the progress of our nation in peace as in war, Georgia Air Service, Inc., with its subsidiary, Southeastern Air Express, Inc., hopes to pioneer the development of feeder lines throughout the Southeast. This service is planned in addition to the present expanding fixed base operations. The men . . . the experience . . . the equipment . . . are here in our war time organization . . . ready for conversion to the peace time needs of a growing South.

SOUTHEASTERN AIR EXPRESS, INC.

a subsidiary of

GEORGIA AIR SERVICE, INC.

ATLANTA GEORGIA

Flight Contractors to U. S. Army Air Forces, Bennettsville, S. C., and Jackson, Tenn.

Lessee-Operator Rickenbacker Field (Cobb County Airport)

Provisions in LAMSA Report Are Opposed By United Air Lines

Certain limiting conditions in an examiner's report recommending that United Air Lines' acquisition of Lineas Aereas Mineras S. A., Mexican airline, be approved, were opposed by United in oral argument before the Civil Aeronautics Board on Aug. 13.

Examiner J. Francis Reilly in his report had recommended that if the acquisition is approved "United Air Lines Transport Corp. shall not permit Lineas Aeraes Mineras S. A. to extend its operations beyond the territorial limits of Mexico without having secured the prior approval of the Board."

This condition was opposed by United, and questions from Board members indicated that they considered the issue of outstanding importance.

John Lorch, UAL attorney, and Phanor James Eder, Latin American law expert, also appearing for UAL, asserted that this condition infringes on the Mexican government, which already has jurisdiction of LAMSA.

On the other hand, G. Nathan Calkins, public counsel, said that if some such condition was not imposed, "you may find all the U. S. airlines dodging out to foreign countries to buy airlines to go places with."

CAB Members Oswald Ryan and Josh Lee asked UAL counsel what control CAB would have if LAMSA, controlled by United, decided to expand southward in competition with U. S. international airlines. Eder told the Board that CAB today has no control of any such activities of LAMSA and probably wouldn't if the application is approved, except that it would have financial control through United. This, he said, would be better than having LAMSA under foreign control (Deutsche Lufthansa at one time attempted to gain control of LAMSA).

Another condition objected to by Lorch was that United's total investment in LAMSA shall not exceed $1,250,000 unless prior approval is obtained from the Board, "nor shall United . . . without similar approval add to its investment in Lineas Aeras Mineras S. A. at any time when such investment, together with such proposed addition, would exceed an amount equal to United's . . . then earned surplus . . ."

Lorch pointed out that such a condition interferes with managerial discretion, while Calkins argued that it is necessary to prevent possible "financial ruination" of United. He cited court cases to prove that outside investments by railroads had resulted in profitable companies ending up in bankruptcy. However, he made it clear that public counsel does not oppose the acquisition provided the conditions are imposed.

PCA Opens New Office

A second Washington city ticket office has been opened by Pennsylvania-Central Airlines on the lobby floor of the Willard Hotel. The new office is in addition to the present one in the Statler Hotel. Howard Kennedy, district traffic manager, is in charge of both offices.

Fledgling Radiomen Use Mobile Unit

A MOBILE TRAINING unit is being used to train radio operators of the 16th Transport Transition Training Detachment, Domestic Division, Air Transport Command, located at Chicago and Southern Airlines headquarters at the Memphis, Tenn., airport.

The unit is a converted station wagon, fully equipped with all the standard two-way radio and radio navigation equipment that is to be found in a modern airliner. It was created because of the shortage of airplanes for this phase of radio training. It is manned by a crew of seven radio operators and a driver, and carries enough equipment for all to work simultaneously.

C. & S. has set up a ground station at the airport to represent a base headquarters. This training crew cruises on nearby highways "working" the ground station. They take radio bearings at intervals, plot courses, and relay their information to headquarters.

The crew also takes bearings on commercial broadcasting stations and government radio stations. It is even possible to work instrument landing approaches in the station wagon, through use of a low-power broadcasting station, a reduced area, and slow speed.

Pilots and mechanics, as well as radio operators, are given "time" in the unit, but the advanced phases of radio training is done in planes.

ABOVE—the complete Mobile Training Unit; AT LEFT—two operators take radio bearings; BELOW—two members of the crew contact their ground station by two-way radio.

The Columbia won every event in its class at the 1926 National Air Races. In 1927, Clarence Chamberlin flew it from Long Island to Germany. In 1930, Capt. Errol Boyd and Lt. Harry Conner flew it from Newfoundland to England.

4,000 MILES NON-STOP FLIGHT TO GERMANY

U. S. Army Air Forces Photo

This remarkable combat photo shows one of the unescorted B-17's in a fleet that rained destruction on the U-boat base and shops at Wilhelmshaven. Many of these powerful U. S. Army Eighth Air Force planes flew from America to England before they started their round-the-clock high level precision-bombing tasks over Germany.

Here is the answer to all Germans who thought America was "too far away." Had the Nazi leaders been a little brighter, they might have feared us sooner. Sixteen years ago, in 1927, a clear sign of American air prowess appeared in the German skies. It was the famous Bellanca long-distance cabin monoplane which flew over 4,000 miles to Germany in 42 hours and 45 minutes, non-stop, setting a world's record.

Today, the Bellanca tradition marches on in the production of the AT-21-BL gunnery crew trainer—precision-built armament equipment—and aircraft components for many of the United Nations bombers that are fighting for freedom in every theatre of this global war.

Above: at Kottbus, southeast of Berlin, where Pilot Chamberlin landed en route to Tempelhof Field, the Columbia gives this curious crowd something to think about. Below: the AT-21-BL gunnery crew trainer, now in production for the U. S. Army Air Forces.

KEEP ON BUYING U. S. WAR BONDS

BELLANCA AIRCRAFT CORPORATION

NEW CASTLE, DELAWARE

Pan Am Controls Mexican Airline Examiner Finds

Pan American Airways, Inc. has acquired control of Aeronaves de Mexico, S. A. through the purchase of a 40% stock interest and therefore the stock transaction is subject to CAB approval, according to J. Francis Reilly, Civil Aeronautics Board examiner.

If Examiner Reilly's recommendation is sustained by the Board, it will mean that the case will be assigned for further public hearing to determine whether the acquisition of control by Pan American of the Mexican concern meets the requirements of the public interest.

The gist of the examiner's findings hinged on the contention that by the nature of Aeronaves' charter and corporate set-up, Pan American, with two of its employes on Aeronaves' five-man Board of Directors holds control of the company's future activities because the charter provides that four members must be present at Board meetings to constitute a quorum and because further, four directors must concur in any given resolution to make such a resolution valid. A two-thirds vote requirement on voting stock is also required by the charter, the examiner states.

"Thus," Reilly's report states, "if the quorum and majority vote requirements of the amended charter are valid and enforceable, Pan American can prevent the adoption of any resolution, by directing its nominees on the board to vote against the resolution, or to refrain from attending the meeting at which the resolution is submitted." Reilly contends further that "also, by virtue of its 40% stock interest, Pan American can defeat any resolution before stockholders' meetings of Aeronaves, either regular or extraordinary, by negative vote or by simply not attending such meetings." The examiner said further that "No dividend can be declared without Pan American's consent, because of its power over both the directors' and stockholders' meetings."

Aeronaves operates two unconnected routes, one between Hermosillo and Mazatlan, via LaPaz, B. Magdalena and S. Hosalia, the other from Mexico City to Acapulco on the Pacific coast. The latter route serves a number of small cities on the west coast of Mexico. The company also has an experimental service between Mexico City to Nautla on the Gulf of Mexico and it also serves a series of interior points in the Province of Oaxaca by means of a circular route. Service between Mexico City and Acapulco is on a once a day basis, except Sundays. The remainder of Aeronaves' routes are served two or three times a week.

The leading figure in the Mexican company is Antonio Diaz Lombardo, a native Mexican and eminently successful in business circles. He is president of Aeronaves, holds the Mexican agency for Standard Oil Company of California, helped consolidate several bus cooperatives, organized Banco de Transportes, is proprietor of one of Mexico's largest Ford automobile agencies and also owns a large hotel at Acapulco. Prior to the transaction with Pan American, Lombardo owned and controlled substantially all of Aeronaves' stock.

Wilbur L. Morrison, a U. S. citizen and general manager of Pan American's wholly-owned Mexican subsidiary—Compania Mexicana de Aviacion, S. A.—made the overtures to Lombardo which resulted in the stock deal. Legal title to Lombardo's Aeronaves stock was held by Combustibles, Turismoy Transportes, S. A. de D. V. Lombardo, acting on behalf of Combustiles, undertook to transfer to Pan American 48 shares of the Aeronaves stock, which at that time was 40% of the entire stock issued.

Morrison testified that Lombardo refused to sell Pan American a majority stock interest in Aeronaves and when Pan American refused to agree to a partnership whereby any other person would hold a majority stock interest in Aeronaves, agreement was finally reached whereby Lombardo would decrease his stock interest in Aeronaves to 40% and Pan American would secure a 40% interest, with 20% to be available for outside distribution. Aeronaves' charter was amended June 16, 1941, and, at the present time, Pan American owns 200 shares of Aeronaves stock and Combustibles 186 shares. Fourteen shares have been sold in blocks of two shares each to seven individuals, all of whom are apparent nominees of Lombardo. The additional 100 shares, under the revised charter, were not to be held by either Pan American or Combustibles. Subsequently 50 shares of the remaining 100 shares were sold to Carlos Osuna, a native Mexican engaged in the sugar business. The examiner states that he (Osuna) was a friend of Morrison. Inasmuch as Osuna has no aeronautical experience, Reilly contends he would seek the advice of his friend, Morrison, on all matters affecting the company's policies. Osuna is also a member of Aeronaves' board of directors.

The examiner commented: "Certainly, the final disposition of the final 100 shares of stock was not in accord with the apparent desires of Lombardo. In fact, it is probable that the degree of Pan American's influence in the affairs of Aeronaves has been increased through the stock holdings of Osuna."

Experts in Latin-American and Mexican law were called for testimony as to the legality of a charter which abrogated the Mexican General law which provides for a simple majority vote in corporate and stockholders proceedings. The experts could not agree. One said such a charter was legal, the other said it was not. No Mexican court decisions on this point could be recalled by either expert. But Reilly holds that in its quasi-judicial capacity, CAB is free to interpret the law with reference to this disputed provision.

Air-Steamship Combine

(Continued from page 20)

the airline field during the past five months in the House of Commons have been:

1. By Hon. Wilfrid Roberts, who warned that "there is a danger that the shipping interests might cramp the development of civil aviation", but in the same breath assured that "the shipping interests are important to this country, and no doubt after the war they should be closely connected with our civilian air transportation";

2. By Hon. Gallacher, antagonistic to private enterprise, who claimed that instead of being allowed to extend its scope to aviation, private shipping should be taken over by the Government.

Typical of the reasons that are being put forth regularly in the House of Commons for shipping control of aviation are the following.

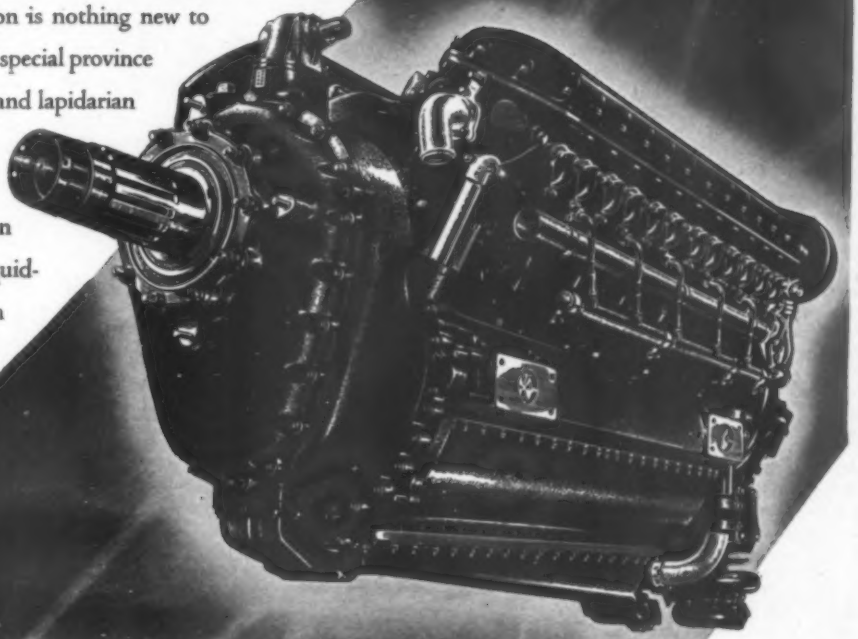
Commander Galbraith: "I want to plead that the liner companies should be given an opportunity to take their place in the management of postwar civil aviation. They have behind them three generations of experience in the handling of passenger traffic. They have at their disposal full statistical records of seasonal traffic throughout the world. They also have a world-wide network of agencies. In these circumstances it would not only be uneconomic but even criminal if they were to be excluded from the development of this great new industry to which they can bring such a wealth of experience."

Sir Alfred Beit: "I have no doubt that I shall be accused of speaking for vested interests, but I am much impressed by the arguments I have heard and read for throwing open civil aviation to all comers, particularly to concerns experienced in the art of transport, such as shipping companies, railway companies and the like. Shipping companies have not only got a world-wide organization of offices, but they have installations capable of handling passengers and goods in many countries throughout the Empire. At the end of the war they will have decimated fleets and a large amount of money with which to re-equip. The question is: What will they do with that money? Are they to be encouraged to invest in the most modern form of transport, or are they to be asked to carry on in the way they have been living for many years past? There then arises this important question: Could they operate in the air with the BOAC still in existence? I fear that the two propositions are mutually exclusive. The shipping companies could, it is true tender for certain routes as yet unopened, such as the route to South America, but what is it that makes an air line attractive, nay, possible? It is the air mail contracts. Is it likely that the Government . . . will not insist on all air mails being carried by their own company, the fortunes of which are of great concern to them?"

Sir Robert Rankin: ". . . of this one may be confident, that if a well-established British shipping company, on its own initiative and capital, desires to run a British air line and is allowed to do so, it will be as likely to attract good technical management and energy for that purpose as any other industry. In twenty years' time it may well be found to have put up a better performance than most and in the process may well have set up some wholesome and invigorating standards and have made a useful and characteristic contribution of its own to British air commerce."

BRILLIANCE WITH A PURPOSE

Like mirrors and jewels is the sparkle of polished metal parts in an Allison—but the eye cannot begin to see the perfection this brilliance reflects. ★ For one of the challenges in making aircraft engines is this... ★ To preserve—by exquisite accuracy of manufacture and finish—all of the inherent strength and endurance in every ounce of material used. ★ This need for perfection is nothing new to Allison. For years it has been our special province to handle metals with precision and lapidarian skill. ★ In today's tasks we are advantaged by all that General Motors has to offer in production techniques. ★ The result is a liquid-cooled aircraft engine which in performance can speak for itself — and an engine which we are resolved to make the finest in the world.



KEEP AMERICA STRONG
BUY MORE BONDS

POWERED BY ALLISON

P-38—Lightning
P-39—Airacobra
P-40—Warhawk
P-51—Mustang

LIQUID-COOLED AIRCRAFT ENGINES

Allison

DIVISION OF GM GENERAL MOTORS

Braniff Stockholders Approve $5,000,000 Expansion Program

Approval of a $5,000,000 expansion program was voted by stockholders of Braniff Airways, Inc., at a special meeting Aug. 19 in Oklahoma City. Much of the new capital will be used in the company's plans to participate in international air transport after the war.

The stockholders approved a plan presented by President T. E. Braniff whereby the authorized common capital stock would be increased from 400,000 shares of $2.50 par value to 1,500,000 shares.

It has been pointed out that the actual amount of additional capital funds voted at this meeting is considerably more than appears on the surface because Braniff claims the stock would be sold at "market value" with the exception of 500,000 shares which would be issued as needed.

Mr. Braniff declared in advance of the meeting that the company was already in position to engage in freight and passenger service to Europe but that the war with its demands upon aviation equipment had made it necessary to delay inauguration of this new service.

"The purpose of the stockholders' meeting," he said, "is to raise the funds to strengthen our financial base and to remove any question of our financial ability to handle the job."

It is estimated that $2,000,000 is needed for new equipment when foreign service is inaugurated. Another $2,000,000 will be required to replace equipment used by the Army, for equipment to meet requirements of present and domestic routes and for modernization of ground and communication equipment on present domestic routes.

Braniff now operates from the Gulf of Mexico to the Great Lakes region and has a contract with the Army providing aerial transport to the Panama Canal Zone.

A Ton of Blood

Two shipments of blood plasma—one amounting to 990 pounds, and the other, 945 pounds—recently were flown across Canada by Trans-Canada Air Lines under a high priority. Since there was not sufficient space for the cargo in the baggage compartments, it was carried in the cabins of the planes and took up the space of six seats.

Canada Plans Air Route To Europe via Arctic

A new air route to Europe over the top of the world, following the Mackenzie River basin is being surveyed by Canada, E. James McKinnon, Minister of Trade and Commerce, was quoted as stating recently.

The route, which would have a complete system of airports, would be for commercial use and would be valuable in event of military emergency, he said.

'Generalized' Tax Exemption Law for Airlines is Opposed

The Treasury Dept. has informed Congress of its opposition to any *generalized* law exempting air carriers from multiple taxation, because of the controversial administrative problems which would arise, it is learned.

The Treasury, although conceding that tax policies are a matter for Congress, has indicated in an official memorandum that any legislation exempting air carriers from multiple taxation will have to be specific and detailed to a hairsbreadth before it will be acceptable to the Department.

It was on this ground of failure to be specific that the Treasury opposed the provision in the Lea bill, as originally introduced, exempting air carriers from multiple taxes. (In later versions of the bill, members of House Interstate and Foreign Commerce Committee have circumvented entanglements of framing an exemption measure by authorizing a "study" of the problems involved instead of outrightly prohibiting multiple taxation).

Three points which the Treasury has pointed out to Congress as examples of what such a law must specify, are:

1. Whether an income tax, license fee, or property tax levied by a possession of the U. S. is to be treated as superimposed upon Federal income tax, so as to produce multiple taxation.

2. Whether it is intended to prohibit the levying of any taxes by a possession of the U. S. against a carrier who is required to pay taxes to a foreign country.

3. What the procedure is to be for carriers to secure relief from multiple taxation; what executive department or agency is to determine the extent to which a taxpayer is entitled to relief; what courts are to be designated in which the taxpayer may institute suit to establish his rights to such relief.

Arctic-Canal Zone Airways System Seen

A continental airways system extending from the Arctic Sea to the Canal Zone may result if Mexico and Central American countries establish air navigation facilities similar to those now used in the U. S. and Canada, Charles I. Stanton, CAA Administrator, reported at the Midwest Global Air Conference in St. Paul on Aug. 20.

"The Canadian airways are so closely integrated with our own continental and Alaskan systems that the three virtually form a vast continental system covering all territory north of the Rio Grande," Stanton said.

General Salinas Carranza, Director of Civil Aviation in Mexico, has declared his intention of extending a similar system throughout Mexico, he stated, adding that "he expressed the belief that the Central American countries might do likewise, and that we could well contemplate a continental airways system extending from the Arctic Sea to the Canal Zone."

WHITING MODEL B3 3-TON AERO HOIST

The Whiting Model B3 3-Ton Aero Hoist, engineered for use in removing and installing unusually heavy aircraft engines and parts, provides a lift of twenty feet and has a rated capacity of three tons. Collapsible construction simplifies shipping.

A unique, streamlined design eliminates all unnecessary superstructures in the aero hoist, reduces the possibility of damage to engine parts to a minimum, provides maximum accessibility from all sides. Notable construction features are the dual work platform eleven feet from the floor, riser steps, and open leg base to accommodate large engine stands or other equipment. Write for information.

Main Office and Plant: 15647 Lathrop Ave., Harvey, Ill. Western Office: 6381 Hollywood Blvd., Los Angeles, Calif. Canadian Subsidiary: Whiting Corporation (Canada), Ltd., Toronto, Ontario. Branch Offices in New York, Chicago, Buffalo, Birmingham, Pittsburgh, Detroit, Cincinnati, St. Louis, and Washington, D. C.

WHITING CORPORATION *Aviation Division*

NO "Time Out" FOR RAIN

Marquette
All-Weather Windshield Wiper

● In the Pacific, we're keeping the enemy on the run—come good weather or bad. In time of rain, the Marquette Wiper gives our bombers the vital advantage of clear sight, the ability to see—in takeoff, in flight and in landing.

The Marquette

METAL PRODUCTS COMPANY
Cleveland, Ohio

Electric Power For Main Engine Starting

Electric Power For Communications Systems

Electric Power For Vital Battle Equipment

The 20A . . . Latest Lawrance Contribution to Auxiliary Power Plant Design

LIGHT—The lightweight Lawrance Model 20A combines power and performance in a unit only 30 inches long, 21 inches wide, and 17 inches high, engineered for installations in which space and minimum weight are of prime importance.

POWERFUL—This 15 horsepower, two-cylinder engine, possessing the built-in margin of dependability that is a feature of every Lawrance Auxiliary, has a continuous power rating of 5 KW, plus a considerably higher overload rating. High operating R.P.M. insures vibration-free performance.

VERSATILE—Serving aboard aircraft and tanks of America's fighting forces, the Model 20A supplies electrical power for the operation of gun turrets, radio, bomb hoists, and other vitally important accessories.

Lawrance

"THE AUXILIARY POWER PLANT THAT'S BUILT WITH AIRCRAFT ENGINE PRECISION"

LAWRANCE ENGINEERING AND RESEARCH CORPORATION • LINDEN, NEW JERSEY

Airline Personnel

Moore

Van Vechten

Kerr

Stafford

Shad

Olson

Transcontinental & Western Air announces that **W. A. Smith,** former district traffic manager at Honolulu, temporarily assigned after Pearl Harbor to the Los Angeles area, has been named traffic manager at San Diego. TWA has created three new regional mail and express posts: **Edward N. Rosa,** passenger agent at Philadelphia, will be mail and express representative there; **Robert V. Kail,** former express representative at Dayton, has been transferred to Kansas City, where he will supervise handling of mail and express for that city, Indianapolis, St. Louis, Wichita, and Albuquerque; **Don R. Hunter,** express representative at Los Angeles, has been transferred to San Francisco. TWA also lists these transfers; **William H. Hopp,** Chicago, goes to Dayton; **Clarence Olson,** New York, succeeds Hopp in Chicago; **Frank L. Baptie,** Burbank passenger agent, goes to Los Angeles; **Edith Juell,** a member of the airline's public relations staff for the past two years, has been named Cooperative Advertising Manager, in charge of all cooperative ad projects, including promotion and display tie-ups.

Chicago and Southern Air Lines announces the following changes in personnel: **Joseph J. Acree** has been named personnel director, replacing **Edward Schulz. Robert E. Gilsdorf,** who has been associated with Northwest Airlines for the past 13 years, has been named assistant to John A. Nooney, C. & S. treasurer. **W. C. Burks,** recently announced as director of research and planning, has been named general air cargo manager. **Norman E. Anishanslin** has been named district traffic manager for Memphis, Tenn., replacing **John J. Shad,** who has been transferred to Houston,

Gilsdorf

Peck

Tex. **B. T. Cline,** supervisor of ticket offices and reservations at Memphis, has been named assistant general traffic manager. **Bernardine Zorn** manager of schedules, tariffs, and statistics will succeed Cline, and **Eugene Ostheimer,** city traffic manager at New Orleans, will succeed Miss Zorn. **Matt Messina** has been named traffic representative for New Orleans. **Thomas D. Brooks** succeeds **Harold Foster** as superintendent of maintenance at the main overhaul base at Memphis. **Robert R. Davalos,** former general foreman of the C. & S. modification center and superintendent of engine overhaul, has been named coordinator of Memphis maintenance. **E. Carl Petterson** has been named assistant to the superintendent of maintenance. **William D. Barclay** has been named superintendent of airlines engine overhaul.

Continental Air Lines has transferred **Horace C. Gates,** district traffic manager at Tulsa, to Denver as city traffic manager. Gates is replaced in Tulsa by **William O. Lennox** of the Denver reservations office. **Frank Skinner,** traffic representative in Denver, has been named district traffic manager at Wichita, to fill a vacancy left when **Seale Fuller** was transferred to El Paso as district traffic manager.

Ivan R. "Ole" Olson, flight captain of Continental Air Lines, is celebrating his 20th year of flying. He began in a "Jenny" and subsequently operated his own flying school.

United Air lines announces the following personnel changes: **Charles W. Field** has been named assistant to the director of personnel in change of procedures. **H. W. Furman** succeeds Field as office manager. **Clara M. Parker** has been appointed women's counselor for the company's personnel department in the east, and **Mildred R. Howard** assumes a similar position in the west. **L. A. Neil, Victor Shawe,** and **D. H. Robinson** have been named personnel representatives at Seattle, San Francisco, and Chicago, respectively. **R. K. Moore** succeeds **E. Van Vechten** as general purchasing agent.

Walter D. Peck has been appointed to the executive staff of Pan American-Grace Airways' South American headquarters at Lima, Peru.

Pan American Airways announces that **Jerome V. Roscoe,** assistant to Victor E. Chenea, vice president and general traffic manager, is now acting assistant division manager of the Alaska division.

Hugh W. Coburn, past three years director of passenger service for Western Air Lines, has been named general traffic manager for Mid-Continent Airlines.

Three United Air Lines women employes in the Los Angeles area have been promoted. **Margaret Erwin,** traffic representative, has been named women's counselor for the traffic department, **Faye Kerr** has received a similar appointment in the reservations department; **Betty Stafford** is the new chief stewardess in the area.

Rosa

Juell

Erwin

Coburn

Anishanslin

Acree

WILL POSTWAR AIRLINERS FLY THESE LEVELS?

30,000 FEET

25,000 FEET

20,000 FEET

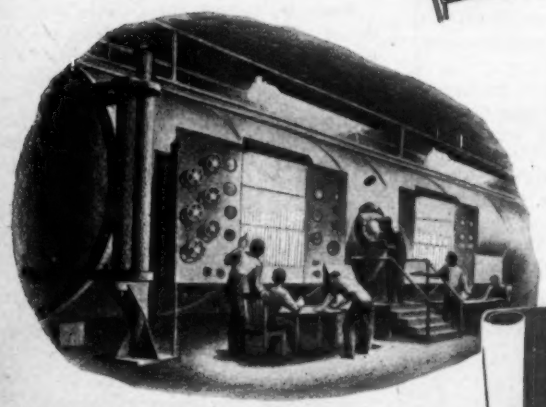
15,000 FEET

"It's something airline operators are looking forward to." Flying the higher altitudes will step up speed... cut fuel consumption... make possible smoother flights above storm conditions.

Up to now, passenger comfort has set the ceiling. For above 8,000 feet, most people's ears begin to pop. Above 10,000, they become sleepy and dizzy. These discomforts—due to lowered air pressures—must be overcome before passengers will take to high-altitude air travel.

Pressurized cabins will pave the way

They will eliminate these discomforts by *holding pressure constant* during take-off and descent. They will *adjust pressure* gradually during flight from low to higher altitude airports. They will even be able to hold sea-level altitude in the cabin while the airplane flies thousands of feet higher.



MUCH of the development work on cabin pressure control has been carried on here in the AiResearch "Stratolab". Our engineers have created altitudes as high as 65,000 feet—temperatures below minus 90° F. And they've found ways to control them!

The success of their engineering now assures pressurized cabins for postwar airlines. Information is available to aircraft manufacturers and airline executives.

AiResearch
MANUFACTURING COMPANY
LOS ANGELES · PHOENIX
DIVISION OF THE GARRETT CORPORATION

"Where Controlled Air Does the Job" • Automatic Exit Flap Control Systems • Engine Coolant Systems
Engine Oil Cooling Systems • Engine Air Intercooling Systems • Supercharger Aftercooling Systems

CAB Proposes Lower Mail Rate For CAL

The Civil Aeronautics Board has ordered Continental Air Lines, Inc., to show cause why its air mail rate should not be reduced from 48.5 cents per airplane mile to a base rate of 26.58 cents per airplane mile.

In its projection of Continental's operations for the forthcoming year, the Board estimates the company's total non-mail revenues at $761,254 annually, its total operating expenses at $1,089,358, leaving a net loss before air mail revenue of $328,104. In fixing the air mail rate of 26.58 cents per airplane mile, the Board allows the company 8% return on its investment on the basis of 14,149,278 revenue miles.

Covered by this tentative order are Continental's Route No. 29 extending between Denver and El Paso and Route No. 43 extending from Pueblo, Col. to Tulsa, Okla. The company's proposed Route 60 extending from Denver, Col. to Kansas City, Mo. which has not been put into operation due to the company's inability to obtain equipment, figures in the opinion only to the extent that the Board, reaffirming its action of April 6, 1942, disallows for rate making purposes a sum of $88,561.70 representing unamortized extension and development charges in connection with proposed new routes.

The base rate of 26.58 cents per airplane mile is on a base poundage of 300 pounds of mail for any month during which the average daily mileage does not exceed 4,972 miles, plus an excess poundage rate of 0.03 cent per airplane mile for each pound, or fraction thereof in excess of the base amount.

Competition Has Prepared U. S. Air Transport Firms For Post-War Era—Monro

Competition has prepared America's air transport industry to meet the postwar challenge of other nations in the air, said C. Bedell Monro, president of Pennsylvania-Central Airlines, in a speech before the Pittsburgh Rotary Club last fortnight.

"America's predominance in pre-war aviation and her ability to meet the challenge of the Axis powers was due not alone to inventive genius but, in large measure, to the domestic competition of commercial airlines," he said.

"It is unfortunate that the proponents of a national monopoly cannot see that a *free enterprise* program is the American way of life and that the American people will not—when told the truth—countenance any other program when the principles of *free enterprise* have made the nation great.

"It is doubly dangerous and unfortunate that a blind, unreasonable and selfish desire not only to perpetuate but to create an even more gigantic monopoly, is placed ahead of the national welfare," Monro added.

Traffic

COLONIAL AIRLINES, INC. show a substantial increase in passenger, mail and express traffic in July over June, 1943 and a 33.4% increase over the same month last year. This showing was made despite the fact the company is operating a schedule of six flights today compared to eight flights during the corresponding period last year.

UNITED AIR LINES flew an estimated 33,625,100 revenue passenger miles during July shattering all records for the company's coast-to-coast and Pacific coast system. The gain, which included substantial increases in mail and express, is 8% over last June and 35% over July, 1942. The previous record—32,943,600 revenue passenger miles—was made in September, 1941. Civilian and military traffic induced by the war was given as the reason. Revenue airplane miles flown showed an increase of only 5% over June and 13% over July, 1942.

AMERICAN AIRLINES Inc. express cargo was up 102.1% for the first seven months of 1943 over the corresponding period of 1942. The company's planes carried 11,281,629 pounds during the period. Air mail poundage showed an increase of 89.4% for the same period, with 13,760,970 pounds making up the percentage figure. Air express alone was equivalent to 2,820 planeloads or more than 13 a day.

CANADIAN PACIFIC AIR LINES reports the following 1943 traffic figures to the end of May: Plane miles flown—2,247,247, an increase of 31.5% over 1942; passengers—24,048, an increase of 12.9%; passenger miles—7,502,306, an increase of 82.4%; air cargo—3,913,614 lbs., an increase of 5%; cargo ton-miles—290,501, an increase of 7%; mail carried—1,055,600 lbs., an increase of 77.7%; mail ton-miles—191,552, an increase of 191.5%.

AEROSPHERE • 1942 LATEST PRINTING NOW SELLING OUT

THIRD ANNUAL EDITION . . . MOST COMPREHENSIVE AERO WORK PUBLISHED . . . WHOLE WORLD'S PLANES, ENGINES, ARMAMENT, STATISTICS AND BUYER'S GUIDE

AEROSPHERE • 1942 pictures and describes the planes that are winning *(and losing)* this global war. Although dedicated to the U. S. War Effort AEROSPHERE also devotes itself to the *business* of aviation because these two must present one solid front geared to Victory! *Contains:*

1) **MODERN AIRCRAFT.** The world's planes, 362 pages, 655 photos and drawings, descriptions...military, civil, commercial.

2) **AIRCRAFT ARMAMENT.*** A vital, new section on guns, armor plate, cannon and shells...for protection of our fighters and destruction of the enemy.

3) **MODERN AIRCRAFT ENGINES.** 128 pages, 399 models of whole world's plane engines. 199 photographs and drawings. *The Power that will win for the Allies!*

4) **STATISTICS.** More complete than ever! What you want to know when you want to know it . . . private, industrial, government.

Only $12.50 *plus shipping*
1,156 pages
8½" x 11½"
Blue Buckram Binding

5) **BUYER'S GUIDE.** The War Effort's vital roster of manufacturers. Whole world's aviation firms. 3,559 U. S. firms alone with 4,718 products listed. Useful to buyer and seller.

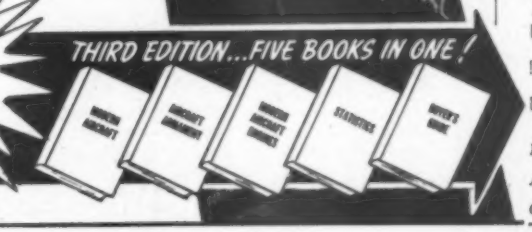
MODERN AIRCRAFT

This new volume of the whole world's airplanes is from AEROSPHERE • 1941 *plus* a 16-page supplement covering the latest planes. 416 pages in all. $7.50 *plus shipping.*

GAS TURBINES and JET PROPULSION for AIRCRAFT

This is the first *and latest* book to deal with propulsion plants employing combustion gas turbine and axial compressor combinations. *By G. Geoffrey Smith, M.B.E.* 56 pages $1.25.

2 Extras
well worth having!
A NEW SECTION ON
*AIRCRAFT ARMAMENT
AND ARTICLES ON THE
U. S. WAR EFFORT



Mail This Coupon Today!

AIRCRAFT PUBLICATIONS
116 East 41st St., New York, 17, N. Y.

Gentlemen: Check is attached for

☐ copies AEROSPHERE • 1942 at $12.50 .....$.....
☐ copies MODERN AIRCRAFT at $7.50 .....$.....
☐ copies GAS TURBINES & JET PROPULSION at $1.25 .$.....

Name .....
Address .....
City ..... *State*.....

'Cargo's Future Dependent on Handling'

By E. J. FOLEY

INCREASED operating efficiency, resulting from aircraft design improvement, can help to broaden the potential market for air cargo. It is unfortunate that anyone should be misled into thinking that the vehicle is the major determinant of cargo's future. Ground transportation, handling, overhead, to mention only a few, are equally vital factors in our equation for tomorrow.

Foley

We have indicated earlier that much effort is spent upon and much importance attached to the development of a specialized all-cargo airplane. This is an admirable proposal, but we still feel that it is starting in the middle. We would do better to go back to the initial concepts and design an efficient transportation vehicle, as Charles Froesch says. Then adaptations become a proper second step. But that is beside the point in this discussion.

The public, we know, in many respects is oversold on air cargo. The airlines are aware of their inability in the forseeable future to do some of the things laymen visualize. Technically correct predictions, cost estimates and the like, emanating from sound sources, become twisted in transmission. The initial conservative qualifications are dropped in propagandizing. Aircraft manufacturers' estimates of cargo carrying ton-mile cost for their latest model may elect to omit many charges which the operator cannot avoid. There is nothing wrong in this omission. The wrong comes in when the public is led to the belief that the figures presented are *what they may expect to pay.*

The catastrophic disillusionment inevitable if such misconceptions are allowed to prevail is obvious. The operators are wise in pursuing a course of deflationary realism in painting their "freight" picture for the public.

On the other hand, carriers must hope and plan to do a better job, the best job possible, to tap the heart of a great potential market. Paralleling their realism in public relations must be a concentrated, constructive campaign for peak efficiency. Top dead center in public acceptance comes with bottom dead center in carrying costs—all other things being equal.

Let us review a few of the problems of air cargo's future exclusive of equipment design. It is not impossible that in each we may find a similarity, pointing to a common solution. We vision no revolutionary result from our efforts. The crystallizing of the course to be followed by an already existent medium would be a good solution if such can be done.

The element of pick-up and delivery—ground handling—is presently prominent, although indeterminate. Its unknown valuation may be a bone of contention for some time to come, but even detailed knowledge would appear only to confirm our suspicion of its import. Nothing on the horizon seems to portend revolutionizing of this phase of operation. It is a factor fairly well limited in means of accomplishment; whoever does it tomorrow will probably do it much as is done today. The only thing to be assured is the ultimate in efficiency with known methods and a system of accounting for costs.

Fortunately, all of the problems pertinent to the subject do not offer those same limitations.

In a review of air cargo efforts throughout this nation today, we believe it no exaggeration to say that every device from shovels to conveyors are being used in handling and loading cargo. Today's job demands today's tools, and splendid results are being achieved. But tomorrow's economy demands complementary efficiency of all moving parts of our system. We must beware of dissipating the efficiency of our prime mover by cumbersome, ineffective ground equipment. All must move together.

In our opinion it is not optimistic to assume that general standardization of size, contour, door dimensions, etc. for specific ranges and types of operation will be a reality in our transport aircraft future. Cooperative efforts to establish such general agreement are already under way. Similarly, is it impossible for us to expect standardization of cargo handling and loading equipment? To attempt universal application for one piece or set of equipment need not be our goal. Development of equipment for specific airplanes would be advantage enough, dependent somewhat on the total industry fleet size for that airplane. If all operators of a cargo version of the DC-3 were to use the same functional ground equipment for handling and loading, maximum handling speed and minimum equipment requirements would result. The overall job done could be as efficient as the equipment.

Plastic Panel: This airplane panel is said to be a typical model of a new technique in plastic molding used by Theodore Moss Co., Inc., 33 Flatbush Ave., Brooklyn. The new method has merit for the production of parts in small quantities where initial costs of tools, dies or steel molds would be high, the manufacturer says. Panels of this type have heretofore been made of aluminum and required steel dies; the new process first molds the panels flat and then while suspended in a semi-cured state curves them on an inexpensive forming device. The unit picture measures 27" by 7¾"

Personnel problems of air cargo, exclusive of ground transportation, duplicate in nature and scope those of any other operating sub-department: salary, training, working procedures, etc. To provide rates attractive to business means effective motion throughout every step in the procedure. Sequence loading, sorting in flight, fast interline transfers, economical stowage are all factors involving personnel and affecting the future. Some things done the same way by all carriers can mean savings.

Regardless of how far exploitation of air cargo is carried in the next few years, the need for research will continue unabated. As a matter of fact, the demand for it will increase to get the last full measure of business. By research, we imply more than market study. There are elements of light, protective, efficient packaging, economical stowage and tie down, and aircraft accommodations.

New air transport operators are sure to enter the field. Accordingly there will continue to be wide differences in size between the several carriers engaged in cargo operation. The research necessary to progress may present no problem to the large operator, but to the small it may be an unsupportable tax on financial and personnel reserves. Unless we hold a brief for the survival of the largest, we must concede the general desirability of joint research financed by logical prorated charges.

The foregoing points give us a representative if not comprehensive picture of air cargo's problems. These and many more must be solved in advance of a full tapping of the markets.

Most obvious is the anonymity of the carrier in relation to each of these problems. They are all common to all operators. From this we must consider the appropriateness of a common industry solution.

Relative to the equipment problem, the design of functional equipment for handling and loading our "freight cars" is already under way in several companies' development sections. To get the most out of this equipment, a central cargo organization merits study. Personnelwise, this handling organization could conceivably employ, train and supervise all personnel necessary to the success of a national and international cargo program. The unification of personnel would provide potential employee-relation advantages in the matter of wage structures, etc. Training could be carried out on a realistic scale with spare airplanes if the organization assumed an operating role and owned or leased flying equipment. If such were not the case, detailed mock-ups in a central school would suffice. The personnel-product of such courses would be spotted

in every airline and regardless of whose equipment was being served, procedures would be identical.

The dedication of the organization to a single purpose might go far toward developing specialization to an unusual degree; short cuts and the advantages of compact efficient stowage accruing to the carriers can inspire new market development.

Such a set-up seems to provide the natural basis for the industry research with advantages to large and small carriers alike. The accumulation of comprehensive operating data is the cornerstone for market and efficiency-improving research.

The development of such an organization by the entire air transport industry in an effort to achieve the fullest possible utilization of their medium of transportation by shippers certainly deserves study. How the organization should be established and financed is not a subject for our conjecture, as a matter of fact the framework may already exist in the form of Air Cargo, Inc., the joint airline venture presently engaged in market research.

We do not believe that the final form for Air Cargo, Inc. has been established by the participants. We hope its ultimate place may be decided upon only after full consideration of this active operating possibility. Duplication of effort is no more welcome in the cargo field than elsewhere in air transportation. Dependent as it is upon so many elements other than aircraft, air cargo can limit its own horizons by inadequate, unflexible planning.

New Cable Terminals

Poulsen and Nardon, Inc., 2665 Leonis Blvd., Los Angeles, are the manufacturers of new cable terminals known as "Socketype." They are approved to replace and are interchangeable with B and C types of present AN and NAF designs and are available in both fork and eye types to fit 1/16", 3/32", 1/8", 5/32", 3/16" and larger; special sizes and types on request. Designed to match the former types, the cable lengths remain the same; the same swaging dies may be used. Only the cable-ends are of stainless or alloy steel; these fit into the socket (fork or eye) permitting full swivelling and 100% bearing.

High Speed Spray Washer

Operating equally well with either a solvent emulsion or an alkali washing solution, the Tabl-Spray Metal Washing Machine has been developed by the American Foundry Equipment Co., 555 S. Byrkit St., Mishawaka, Ind. Designed for high speed washing of flat, fragile parts or circular parts with pockets, the Tabl-Spray's typical applications include removing chips, lapping compound, oil, etc. from aircraft parts; cleaning crankcases, rear sections and adapters, small assemblies, gears, rocker arms, etc. before inspection or after magnaflux. Parts measuring 25" in diameter and 12" high can be handled on the standard machine.

New Computer Developed for Pilots and Navigators

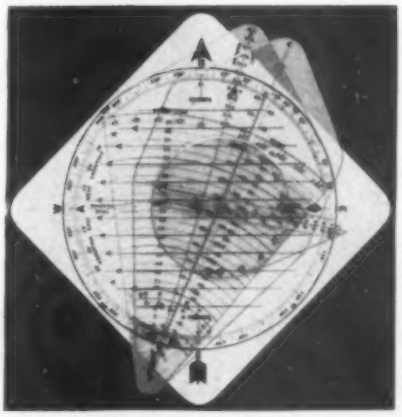
PILOTS AND NAVIGATORS will be interested in the new Super Flightmaster computer developed and marketed by the Jardur Import Co. of 874 Broadway, New York. The computer is an outgrowth of the company's "10-Second Flightmaster" but embodies many new features which make it easier to use than the conventional computer. Unlike other computers, solutions do not have to be obtained by means of a pencil line drawing; rather they are found by a visual mechanical drawing board arrangement which maintains all the data on the face of the instrument until the final answer is obtained. This, of course, minimizes errors.

As the illustration shows, there are two sides to the computer: (1) the slide rule side, and (2) the navigational side. On the slide rule side the largest or outside set of scales is for problems involving time, speed and distance; or time, gallons per hour, and total gallons. It is also arranged so that it can be used as an ordinary slide rule for calculations involving multiplication or division, or both. There are three red arrows marked "naut", "stat" and "KM" for ready conversion of any two of these factors. An unusual feature of the outer scale is the fact that instead of having only one cycle of figures from 10 to 100 which makes it necessary for the user to calculate the decimal point mentally, the scale reads from 10 to 1,000 directly. Thus, except for exceedingly long flights, practically no mental calculation is necessary.

The navigational side of the Super Flightmaster although difficult to describe and complicated to look at is very simple to use because each solution is an exact replica, on a small scale, of the ground diagram of that particular problem. The navigational side consists of 5 parts. First, there is the main base which is merely a compass rose divided into degrees, from 0° at north and proceeding in a clockwise direction to 360°, again at north.

Second, is a wind base dial (marked "A") having a number of parallel red lines with direction arrowheads; a "wind reading" red diamond for setting the "out of" direction of the wind; a "true heading" black arrow spanned by magnetic correction scale, used for determining the magnetic heading and for other purposes; and two arrows marked "Normal" for setting the wind lines at right angles to a course or direction.

Slide Rule Side



Navigational Side

Third, is a ground segment (marked "B") with a center line; and having a series of concentric uniformly spaced arcs used for reading ground speed in some problems and air speed in others; a protractor scale at arc 30 on which the correction angle (plus or minus) can be read when desired, and also a protractor scale at arc 9 for measuring the angle between the ground line and the air line in certain problems.

Fourth, is an air segment (marked "C") on which is read air speed in some problems and ground speed in others. This segment has a long slot in which operates the fifth part. This fifth part is a wind arrow (marked "D") having an arrow and protractor scales to measure angles on either side of the center line of the arrow.

The Jardur Co. states that this computer sells at $15.00.

Portable Oil Filter

The Hilliard Corp., 300 W. 4th St., Elmira, N. Y. announces a portable oil filter consisting of a standard Hilco Hyflow Oil Filter, and a small gas engine driven pump for circulating the oil through the filter. The engine exhaust is passed through a jacket to provide filter heat. The units are available in sizes from one gallon per minute to several hundred barrels per hour depending on the type of fluid. Portability permits bringing the filter to the source for direct connection and the units are said to eliminate the need for draining and batch reclaiming by allowing through-circulation: used oil passing through filter becomes purified and is returned directly to the source tank.

SCAI Pay Rates Applied to 3 Plants in South and Midwest

THE NATIONAL War Labor Board is continuing its policy of authorizing in airframe plants the installation of a "rational and systematic job classification structure."

In two recent decisions it applied Southern California Aircraft Industry rates to the New Orleans plant of Higgins Aircraft Co. and the Nashville, Tennessee, plant of Consolidated-Vultee Aircraft. A third decision applied a SCAI plan modified to fit local wage scales to the Wichita, Kansas, plant of Boeing Airplane Co.

The opinion on the three cases states: "The Board has approved rates for the various labor groups or groups of occupations which conform to sound and tested going rates in the airframe industry and which are at the same time in line with area rates for comparable jobs. The reclassification plan which the Board has approved in these cases does not involve a general wage increase nor does it result in any appreciable rise in production costs."

The job classification systems established by the Board and approved by Director of Economic Stabilization Vinson were modifications of agreements between IAM and two of the companies, Boeing and Consolidated. Higgins, having no authorized bargaining agent, requested approval for a schedule of rates to be applied to a payroll which is only 15% of that expected at peak production. About 35,000 workers are covered by the three orders.

At the Consolidated plant, the reclassification will affect about 77% of the total factory payroll, providing an immediate increase of 6c an hour but ultimately reducing the maximum to which wages may rise. The increases are retroactive to July, 1942 and are payable in war bonds and stamps.

Under the plan approved for the Higgins plant, two rates for trainees were set, 60c for non-productive workers and 65c for productive workers, with a progression schedule up to 80c an hour. Other Higgins rates correspond to the schedule approved for Consolidated.

In its opinion on the Boeing plant rate structure, the Board gave a detailed description of the Wichita situation which caused them to vary the pattern of classifications in that decision:

"The Wichita, Kansas industrial area is primarily an airplane manufacturing and assembling center. In addition to Boeing, two other large companies, Beech and Cessna, are established in the community. One other relatively small company is Culver. The wage scales of the other two large companies have been approved and fixed by previous Board orders. Beech operates with a unique incentive payment plan resulting in wage earnings beyond the general level of the industry but having at the same time a record of unusual production. Cessna and Boeing both use the same job evaluation and classification plan developed by the National Electrical Manufacturers Association. The wage scale of Culver is now before the Board for revision.

"In December 1942, the National War Labor Board approved an agreement between Cessna and the International Association of Machinists. The resulting revision of Cessna's scale of rates created a substantial differential between Cessna rates and those in effect at the Boeing plant. It is to be noted that the Cessna scale was influenced by the wage-earning possibilities at the Beech plant. Meanwhile Boeing's application for approval of an adjustment similar to that at Cessna was delayed by uncertainty over the outcome of proceedings pending before the Board as respects the Company's two West Coast plants. On April 3, 1943, after the Board's West Coast decision, Boeing applied for approval of a voluntary adjustment which would raise its average rates above Cessna's.

"The Board is convinced, after examining turn-over and absentee figures, that the disparity in rates between Boeing and Cessna has worked to the detriment of Boeing which is by far the larger and more important establishment in terms of war production and military necessity at this time.

"In order to correct this situation and to bring about a stabilization of airframe rates in the area, the Board has approved the adoption of present Cessna rate ranges for each labor grade at Boeing. By taking such action, the Board has denied Boeing's request for higher rates which would have an unstabilizing effect.

Testing for Balance

Two mechanics at Brewster Aeronautical Corp. are shown setting up a Corsair's propeller preparatory to making pre-installation tests in the company's new portable still-air testing room. Propellers are balance-tested in the room under ideal atmospheric conditions.

Building of Plane Facilities is Well Advanced—WPB

Construction of aircraft facilities is one of the most advanced phases of the government's war construction programs, WPB officials have revealed to *American Aviation*. As of July 1, aircraft facilities were 77% complete, compared with 55% in January and 31% on July 1, 1942.

A WPB release states that expansion will show moderate decreases in succeeding months. Spokesmen express confidence that the remaining facilities will be complete and in production by the end of the year. As of April 1, $19,338,997,000 had been spent since July, 1940; about $15,000,000,000 by the government and $4,000,000,000 by private industry.

Aluminum and other non-ferous metals construction was about 76% complete on July 1, compared with 45% on January 1 and 16% on July 1, 1942. High octane gasoline plants showed the greatest percentage increase in the last six months, rising from 1% in January to 39% on July 1. With the synthetic rubber program virtually completed, high octane plants have been given AA-1 priority. According to one official, this is one of the few war-expanded programs in which private financing has exceeded that of the government—$109,000,000 has been invested by government, but over $700,000,000 by private industry.

In connection with the assignment of AA-1 priority to aviation gasoline plants, acting Petroleum Administrator for War Ralph K. Davies announced the organization of an expanded Construction Division to "expedite the construction of 100-octane aviation gasoline plants." It will be directed by Max B. Miller, former chief of the Construction Section of PAW's Refining Division. Primary problem to be faced is the acquisition of sufficient labor to keep construction up to the level of materials flowing in from the use of the high priority rating.

Kilgore Says Modifications Are Causing Production Lag

Modifications were blamed for lagging warplane production schedules in a statement made Aug. 17 by Senator Harley M. Kilgore, (D., W. Va.), following an inspection of modification centers in the south and midwest.

Kilgore, who made the trip as a member of the Truman committee's special aviation subcommittee, said that while some modification of assembly line models is necessary to meet the varied battle and climatic conditions of world-wide war, he felt that it should be possible to send some of the modifications back to the assembly lines. This, he said, would reduce proportionately the changes that must be made at the modification centers.

Modification centers at Birmingham, Dallas, Kansas City, Omaha and Louisville were visited by Kilgore.

ARO EQUIPMENT CORP. stockholders have approved an increase in the common stock par value from $1 a share to $2.50 a share.

POWER TO WIN

Thousands have earned their wings with dependable Continental Red Seal Power, and these famous Red Seal Engines have always inspired a trusting confidence in the hearts of men learning to fly.

Your Dollars Are Power, Too . . . Buy War Bonds

ARMY E NAVY

Awarded to the Detroit and Muskegon Plants of Continental Motors Corporation for High Achievement.

Continental Motors Corporation
Aircraft Engine Division
MUSKEGON, MICHIGAN

Incentive Wage Plans Explained

H. L. Knight, Who Helped Grumman, Beech And Others, Gives Pros and Cons

OUTSIDE OBSERVERS have wondered why WPB Vice-Chairman Charles E. Wilson has not urged incentive wage plans on the aircraft industry.

Some of the complicating factors have been explained to *American Aviation* by Henry L. Knight, Washington attorney, who has helped work out incentive wage plans for Grumman Aircraft Engineering Corp., Beech Aircraft Corp and other companies.

High turnover, the impossibility of making acurate time-studies in a flexible industry, incomplete expansion of plant space and labor force combine to make incentive wages unfeasible in many cases, Knight believes. To make such a plan work, a plant must have had substantial experience in volume production, it must have a reliable flow of material from its subcontractors and it should have a steady labor force of experienced employes. He believes that only companies which have explored all other possibilities for increased production and which have a stable basis for calculating their normal volume can apply incentive wages successfully.

"It is important to remember," Knight says, "that all production incentive plans are somewhat in conflict with the wage stabilization program of the administration."

The National War Labor Board consistently gives its approval whenever production costs are not increased, but, Knight declares, the Salary Stabilization Unit of the Bureau of Internal Revenue has endeavored to adhere to a rigid literal compliance with the President's order. In one recent ruling on an incentive plan in the aircraft industry, this unit gave lip-service approval of the plan, but limited salary payments to those made during the prior year at which time the incentive plan was in its infancy, he recalls.

Believing that any production incentive plan should have production and non-production employes as participants, he admits there is probably a salary level above which employes should not participate for inflationary reasons. Knight disagrees, however, with WPB Vice-Chairman Wilson, who believes that under an incentive plan employes should receive the same percentage increase in pay as they effected in production. The objective of reducing unit costs is impossible under this type plan, he points out.

To demonstrate his thesis of the applicability of wage incentives to aircraft production Knight cites two examples from the industry.

"The con example," he said, "is the experience of the Curtiss-Wright Buffalo plant under the departmental incentive plan. In that plant the squabbles over the standard productions for the departments caused the abandonment of the plan, and the War Labor Board recently ordering a 15% increase in wage rates in lieu of the plan. The example favoring adoption of incentive plans is that at Beech Aircraft's Wichita plant. There employes receive an increase in pay of one-half the percentage increase in pound production of airframes which they attain over the adopted base period. This plan was evolved by collective bargaining between the IAM local and the company management."

He advised plants which have just attained large volume production to carefully evaluate what increase in efficiency should be expected through causes aside from the personal incentive of their employes. He also pointed out that the Controlled Materials Plan superimposes a ceiling on the amount of increased production which is possible.

Goodyear Expects to Stay In the Airplane Business

Goodyear Tire & Rubber Co. expects to stay in the airplane business after the war, according to P. W. Litchfield, chairman of the board.

Returning from a 20,000-mile trip through the United States, South America and England, where he inspected rubber and airplane production facilities, Litchfield laid particular stress on the company's position in the aviation industry and its present production program, with more employes making planes than the total engaged in rubber production. He revealed Goodyear is now building Navy Corsair planes, wing and tail assemblies for other planes, and a large number of dirigibles and blimps.

Litchfield feels that America should control air power in the postwar era as Great Britain controlled sea power before the war. He thinks Goodyear will have two or three years of good business following the war, with volume that would probably exceed normal peacetime levels. Reconversion of peacetime pursuits won't pose too great a problem for Goodyear, and should be accomplished in a short time because the tire industry has continued to produce truck and civilian motor car tires, he believes.

Changes in Renegotiation Act Necessary—Hinshaw

Rep. Carl Hinshaw, (R. Cal.) told *American Aviation's* West Coast reporter last week that changes are necessary in the renegotiation act if the airplane industry is to escape some of the adverse effects of postwar re-adjustments.

Hinshaw, influential member of the House of Representatives' Interstate and Foreign Commerce Committee and a representative from a state that has taken a leading role in aviation circles, feels that at least to the extent that the industry has over-expanded because of war demands, sufficient reserve should be allowed for conversion to peace time demands.

"I believe these funds should be retained as part of the companies' current assets and should not be used for the payment of dividends or for capital expenditures. Any surplus that remains after conversion should be recaptureable by the Treasury Department," Hinshaw stated.

He believes labor will favor such a plan to avoid some of the ill effects which otherwise might be expected when war production ceases, for if airplane companies go to the wall, airplane workers will face naturally serious unemployment problems.

Instrument and Range Flying Demonstrator

Melvin K. Lyster, chief Link instructor at Southwest Airways' Falcon Field, in Arizona, is shown with a device, invented by him, which permits individualized training on instrument and range flying to an entire class simultaneously. The invention is hooked up so that radio range signals can be sent over a loudspeaker, with the instructor's voice superimposed on the same beam.

Guardsman
AVIATION FINISHES
Continuously supplying finishes to Wright Field since 1935.
Production Test Figures Reveal Tremendous Savings
The impressive record of Guardsman Finish and Guardsman methods for finish of ailerons and flaps for Aircraft Ambulances* shows these astonishing comparisons.
Number of Operations
Man Hours of Labor
Elapsed Time for Finish
Material Consumed
Old Method
Thirteen
94 minutes
254 minutes
9 quarts
Guardsman Way
Eight
36½ minutes
26½ minutes
5 quarts
*Name of manufacturer on request.
Guardsman AVIATION FINISHES
What GUARDSMAN is doing for others, it can do for you.
Exclusively Manufactured by
GRAND RAPIDS
VARNISH CORPORATION
GRAND RAPIDS · MICHIGAN
30214
HE-1

DARNELL CASTERS

SAVE MONEY

Write FOR NEW MANUAL

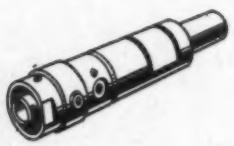
If you want maximum floor protection, economy and efficiency Demand Darnell Dependability...Made to give an extra long life of satisfactory service .....

DARNELL CORP. LTD.,
LONG BEACH, CALIFORNIA,
60 WALKER ST., NEW YORK, N.Y.
36 N. CLINTON, CHICAGO, ILL.

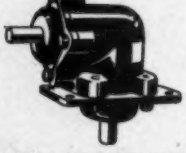
DESIGN FOR VICTORY

Specify OTTO Aviation Equipment

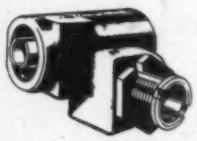
TACHOMETER ADAPTERS



TAB CONTROLS AND ACTUATORS



90° DRIVE ASSEMBLIES



90° DRIVES (TAB CONTROL)

HYDRAULIC VALVES DE-ICER EQUIPMENT FLEXIBLE SHAFTS

OTTO AVIATION CORPORATION

BLOOMFIELD • NEW JERSEY

'General Aircraft Not Sold to Grand Rapids Industry'—Maynard

General Aircraft Corp. announces that it "has not been sold to Grand Rapids Industries," although a report to that effect was circulated in June.

H. J. Maynard, Jr., president of General, has issued the following statement:

"The General Aircraft Corp. has not been sold to Grand Rapids Industries and will continue to build its patented Skyfarer two-control airplanes when the war ends and the company's manufacture of big cargo and troop-carrying gliders is discontinued.

"Our company has entered into two agreements with Grand Rapids Industries. In one we agreed to sell the Grand Rapids group a number of unsold G1-80 Model Skyfarers and all our inventory of partially constructed material having to do with the manufacture of this model and the jigs from which our production had been established.

"In this agreement, we also gave Grand Rapids Industries the right to manufacture the G1-80 Model Skyfarer, at the same time reserving General Aircraft's right to resume the manufacturing of this model at any time it so desires. The agreement does not involve any other models of the Skyfarer or other planes which General Aircraft has developed or will develop in the future.

"In the second agreement, General Aircraft has granted to Grand Rapids Industries a non-exclusive license for the use of its patents, including the two-control, whereby the Grand Rapids organization may develop and manufacture any airplanes of its own design or others and may incorporate in them the patents obtained under this licensing agreement.

"General Aircraft plans, after the war, to embark heavily on the manufacture and marketing of small planes for private fliers. In the meantime, we are in quantity-production of war gliders of the same CG-4A type that recently spanned the Atlantic with a cargo, and those which carried America's first airborne glider troops into Sicily."

(American Aviation reported June 15 that the Grand Rapids concern "acquired patent licenses, finished planes, and parts inventories . . . and announced it will proceed to manufatcure General's 'Skyfarer' plane." The report came from Grand Rapids Industries, Inc.)

General Aircraft Report

General Aircraft Corp. reports that production and employment at its plants on Long Island are at an all-time peak. The company has discontinued manufacture of airplanes and is concentrating on building large cargo and troop carrying gliders of the same CG-4A type which recently crossed the Atlantic with a cargo, and similar to those which landed the first American troops in Sicily.

CHAMBERLIN AIRCRAFT ENGINEERING CO., Inc., has been incorporated in New Jersey by Clarence D. Chamberlin. Place of business was listed as Hackensack, N. J.

Industry Can Convert to Peacetime Status Quickly, Says Cohu

Private industry can convert from wartime production to peacetime production just as quickly as it did the "reverse" at the start of the war, La Motte T. Cohu, president of the West Coast and National Aircraft War Production Councils, told *American Aviation* last week.

"Private industry did well in converting overnight from peace to war in spite of what seemed insurmountable obstacles. It can do the same thing in reverse order," said Cohu, who is chairman of Northrop Aircraft, Inc.

He warned, however, against "overemphasizing postwar planning."

"We've got one job to do now—win the war, decisively and unconditionally," he said. "There are many knotty problems which face us. Uppermost at present is the shortage of manpower. Many men are returning to farms where deferment is assured. Women, who entered the industry fired with patriotism, are finding that in some cases the double burden of factory work and housekeeping is a physical impossibility."

Cohu pointed to steps being taken to correct the problem of engineer and skilled worker losses, but declared that "solution of this is not the end of our troubles."

"The very nature of total war and maintenance of overwhelming air power brings constant change," he said. "This requires the full attention of every war worker. This is why we cannot be lulled into false security by glowing predictions for the future. We have more than enough to keep us occupied in winning the war now."

Cohu said that military production for Northrop at present means the P-61, the fighter that remained under wraps until the recent Truman Committee report. He revealed that production of the "Black Widow," details of which are a military secret, soon would be started.

New Plywood Adhesive Developed by Du Pont

A new departure in adhesives used to bond the thin sheets of wood that are molded to form the bodies of Military helicopters has been developed by the Du Pont Company and is now being used in the manufacture of this new type of plane.

R. C. Peter, Du Pont Finishes Division chemist, claims that the most important of several unusual qualities of this new plywood 'glue' is that it is both thermoplastic and thermosetting, meaning that when ply-covered forms are heated under pressure in ovens, the adhesive at first becomes fluid and permits the layers of thin wooden strips to move into intimate contact. After 20 minutes the adhesive sets as a permanently tough, heat-resistant, insoluble material, Peter states.

Known as Adhesive No. 4624 for secrecy reasons, it is claimed that the new product is unaffected by the high temperatures that build up in the interior of airplane surfaces under a tropical sun.

'Fastest' Production Line

Consolidated Vultee Aircraft Corporation's production line at Downey, Cal., is said by the company to be the "world's fastest." Eleven planes, just part of one day's production, can be counted on the portion of it shown above.

Bendix Production Up

Bendix Aviation Corporation announced Aug. 14 that July production of aircraft carburetors at its midwest plants surpassed the total manufactured during the entire year of 1940. Thousands of new employees were trained and three additional plants for carburetor production were opened to meet the War Department needs. Production in the company's four carburetor producing plants reaches tens of thousands each month. These factories have turned out more carburetors for the Army Air Forces during the past three months than during all of 1941.

Higgins Plans Mass Output Of A Low Cost Helicopter

Coming closely on the heels of the War department cancellation of contracts of Curtiss-Wright Corp. and Higgins Aircraft Inc. for Curtiss C-76 Caravans, Andrew J. Higgins, head of the latter concern, announces that his firm will enter the field of helicopter production on a mass scale.

Higgins is reported to have invited War department officials to attend the test flight of a new craft, designed by Enea Bossi, internationally known aircraft engineer, ostensibly for the purpose of landing a war contract. The announcement indicated that if the Southern ship and plane builder was not successful in getting a war contract, he would focus his attention on the development and manufacture of the helicopter for civilian use in the post-war period.

Bossi was quoted in press dispatches as stating that the plane to be built for civilian use would cost $1,500 for a two seater and $4,000 for a sedan. The engineer further stated that gas consumption of his model would be considerably less than the average plane and much less than that of the average car.

The War department, in cancelling Higgins' contract for the Curtiss C-76 Caravans, twin-engined wooden transports, Aug. 3 said its action would provide additional facilities for volume production of newer metal cargo types.

ARO EQUIPMENT CORP. Bryan, Ohio has announced a dividend of 25 cents per share payable Sept. 15 to stockholders of record of Sept. 4. This is first dividend on the 310,000 shares of common stock outstanding after the payment of a stock dividend of 100% declared June 8, 1943. Shipments for July totaled $1,303,000—approximately 80% over July, 1942. Total sales for the year to July 31, 1943 were $9,780,000 as against $4,289,000 in corresponding period, 1942.

Fairchild Builds An All-Wood Hangar

Fairchild Aircraft Division of Fairchild Engine and Airplane Corp. has completed an unusual wooden hangar near its main assembly plant on the municipal airport at Hagerstown, Md. Its skeleton is shown above, built of laminated yellow pine arches, measuring 170 feet across. Almost no critical materials were used in the hangar's construction.

Manufacturing Personnel

Warner Jones, formerly assistant manager of the Allentown, Pa., division of Consolidated Vultee, has been appointed division manager of the company's modification center at Louisville, Ky., where he succeeds **W. E. Burdick.**

Adel Precision Products Corp., Burbank, Cal., has appointed **Graham Sullivan,** on leave from San Diego public schools, as assistant director of industrial relations in charge of training, and **Raul Rodriguez,** former magazine editor to its public relations dept.

New public relations director of Ranger Aircraft Engines division of Fairchild Engine & Airplane Corp. is **Harry A. Hershfield, Jr.,** of Williamsport, Pa., formerly with Lycoming Division of Aviation Corp. He succeeds **Louis W. Davis,** now in the Army.

Election of **Charles Hummel** as comptroller of Bendix Aviation Corp. to succeed **W. H. Houghton,** recently elected treasurer, has been announced. He had been with Price, Waterhouse & Co. for 19 years.

Harvey Bowman has moved from the Farmingdale, N. Y., to the Indiana Division of Republic Aviation Corp. as job classification manager.

John T. Prout, who has been in charge of plant protection for Dowty Equipment Corp., Long Island City and Sunnyside, N. Y., has been appointed director of personnel, according to **Alec E. Ulmann,** president.

Bendix Products division of Bendix Aviation Corp. announces promotion of **Milo McCammon** to assistant general production manager.

Directing procurement and purchasing for Aircraft Accessories Corp., Los Angeles, Cal., is **Jack A. Keim,** who formerly was identified with the Signal Corps at Wright Field, Dayton, O.

Harry K. Beebe has left Brewster Aeronautical Corp., where he was chief plant engineer and advisor to the works manager for the past two years, to join the Wales-Strippit Corp., North Tonawanda, N. Y., manufacturers of punching and notching equipment, according to **George F. Wales,** president. He has served with Bell Aircraft, Ford Motor Co., and other large manufacturers.

Fritz Ziebarth, head of a Long Beach, Cal., construction firm, announces he has taken over operation of Morrow Aircraft Corp., Rialto, Cal. In charge of the Morrow operation for Ziebarth is one of the members of his organization, **E. M. Findlay,** who was formerly with the Hoagland-Findlay Engineering Co.

R. Randall Irwin, for 10 years industrial relations director of Lockheed and Vega Aircraft Corporations, is now one of the busiest men in Washington since he was loaned to War Manpower Commission at the urgent request of that agency, as executive assistant to management members of WMC's policy committee. He was appointed at the same time as assistant to Administrative Vice President **Cyril Chappellet. William M. Aulepp** was named industrial relations director for Lockheed and Vega, with **R. B. Robertson** continuing as assistant director.

Hershfield

McCammon

Ziebarth

Beebe

Keim

Prout

Irwin

Aulepp

Gleed

Field

Appointment of **W. D. Kennedy,** vice president of Wright Aeronautical Corp. for the past three years, as manager of the Cincinnati plant, has been announced by **Myron B. Gordon,** vice president and general manager. **W. W. Finlay,** manager of the Cincinnati plant since it was started in 1940, was made director of industrial relations, with headquarters in Paterson, N. J.

John Meade, assistant director of industrial relations for Bell Aircraft Corp., has been appointed Head Hearing Officer of the National War Labor Board and will serve on the review committee which passes on appeals from regional board rulings.

Now working with Chief Engineer **Benjamin T. Salmon** of Ryan Aeronautical Co., San Diego, Cal., on the engineering of Ryan's new Navy combatant-type plane is his recently appointed assistant, **Nathaniel E. Warman,** widely known marine engineer and an Annapolis graduate who also has done postgraduate work in aeronautical engineering and formerly was with Lockheed and others.

Appointment of several division heads is announced by Republic Aviation Corp., Farmingdale, N. Y. **J. Sawyer Wilson,** employment manager, was named training manager to succeed **Joseph C. Sweeten,** who returned to his former firm. **Howard E. Richards** was made employment manager. **Donald W. Patterson,** formerly personnel service supervisor, was promoted to assistant director, industrial relations.

American Propeller Corp., Toledo, O., has appointed **William M. Stabler** as service manager of the Toledo plant. He formerly was service manager of The Aviation Corporation's Liquid Cooled Engine Division.

E. N. Laurance has been appointed works manager of the Miami Division of Consolidated Vultee Aircraft Corp. He was associated with Vought Sikorsky before joining Consolidated in 1942 as fabrication superintendent. With this change, **R. E. Brown,** formerly Works Manager at Miami, takes a similar post at the new Allentown, Pa., Division. **Warner L. Jones,** formerly assistant manager at Allentown, has become manager of the Louisville, Ky., Division. He was a founder and first president of the Jones Dabney Co., Louisville engineers.

Republic Aviation Corp. Vice President C. **Hart Miller** has become Divisional Manager for the Farmingdale plant and is succeeded as director of the Military Contracts Department by **Don M. Parker**, formerly his assistant.

Rubert J. Lindquist, vice president and director of Reynolds Metals Co., Richmond, Va., since 1941 has joined Curtiss-Wright Corp., and has been elected a vice president in charge of finance.

Adel Precision Products Corp., Burbank, Cal., has named **Fred O. Field**, Los Angeles industrial advisor, as director of industrial relation, President **H. Ray Ellinwood** announces. **Kenneth Gleed**, formerly Adel cashier, becomes personnel manager.

Three executive shifts have recently been made at McDonnel Aircraft Corp., St. Louis, Mo. **Harry O. Smith**, a consultant since 1941, has become director of industrial relations. **Garrett C. Covington**, for the last four years assistant chief engineer, has been promoted to chief engineer. **Edwin W. Walker**, chief engineer for two years, assumes a new post as assistant to the president.

President **William T. Hedlund** of Elastic Stop Nut Corp., of America. Union, N. J., announces appointment of **Frank Shugert**, formerly industrial relations director for Ranger Aircraft Engine Division of Fairchild Aircraft Co., as director of industrial relations.

Ranger Engines Division of Fairchild Engine & Airplane Corp., Farmingdale, Long Island, N. Y., has elevated **Everard M. Lester** from assistant chief engineer to assistant general manager. He was succeeded by **C. P. Sanders**, formerly development engineer. A third executive shift saw the promotion of **Paul Battilana** from service manager to assistant manager of contracts.

Fairchild Aircraft Division, Hagerstown, Md., has appointed **Joseph T. Ogle** as assistant service manager in charge of the field service. He formerly did similar work for Wilcox-Rich Corp. and Bohn Aluminum Brass Corp.

President **Henry J. Kaiser** of Fleetwings Division of Kaiser Cargo, Inc., has appointed **Russell E. Dill** chief administrative manager and **S. D. Hackley** as chief operations manager of Fleetwings. Both have been members of the Kaiser organization, Dill with the East Coast and Hackley with the West Coast division. **Frank De Ganahl**, former vice president and general manager, has resigned because of ill health. **W. F. Jacobs** has resigned as factory manager.

Bell Aircraft Corp., Buffalo, N. Y., has as new production test pilots, **John L. Grissom**, formerly of Troup, Tex. and **Joseph Mashman** of Niagara Falls, N. Y.

Murray Corp. of America, Detroit, Mich., has transferred **R. M. Wilson** from its Detroit plant to the company's new bomber wing assembly plant in Scranton, Pa., as supervisor of the standards dept.

Consolidated Vultee's Miami division reports the appointment of **R. W. Cole** as division controller. He was formerly assistant treasurer. **A. A. Green**, formerly associated with Vought-Sikorsky Aircraft Corp. in development of the helicopter, has become chief division engineer. **W. S. Leaycraft**, continuing to serve as division treasurer, also assumes duties of Chief of Materials and Chief of Contracts.

Parker

Miller

Stabler

Laurance

Shugert

Walker

Harry O. Smith

Covington

Jones

Lindquist

Lester

Ogle

Whiting Corporation, Harvey, Ill., has appointed **John Easton**, chief of the Civil Aeronautics Administration's technical development division, as director of the development and standardization activities of the company. He succeeds **A. J. Brown**, transferred to California as manager of the Pacific Coast branch.

N. V. Kritzner, formerly assistant in production planning at Fairchild Aircraft's Burlington, N. C., plant, has been named director of procurement of that division, succeeding **J. D. Hewitt**.

C. E. Wilson, president of General Motors, has announced appointment of **E. B. Newill** as general manager of the Allison Division in Indianapolis, Ind. Vice President **F. C. Kroeger** has been granted a leave of absence from that post due to illness. New assistant to GM's Vice President **E. F. Johnson**, in charge of Eastern Aircraft Division and the G. M. divisions in Dayton, O., is **Alva W. Phelps**, who has been transferred from the electro-motive division. Newill formerly was Johnson's assistant. **Cyrus R. Osborn**, newly elected vice president, will be in charge of the electro-motive division at LaGrange, Ill.

Alfred M. Wilson, formerly associated with the investment banking firm of J. & W. Seligman Co., has been elected vice president of Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.

Don P. Smith, president of Interstate Aircraft & Engineering Corp., California and Illinois, announces appointment of **Charles D. Truman** as public relations director with headquarters in Los Angeles. He formerly was with General Motors Products of Canada and a Toronto advertising agency.

Charles L. Beard, recently elected a vice president of Bell Aircraft Corp., will continue to serve as secretary of the corporation. He resigned as treasurer, however, and is succeeded in that office by **Louis Fenn Sperry**, formerly treasurer of Panhandle Eastern Pipeline Co. Beard became administrative assistant to the president on June 15.

Bendix Aviation Corp., Detroit, Mich., announces the following personnel news: **N. B. McLean**, former general manager of the Philadelphia division, becomes general manager of the marine division; **T. W. Tinkham**, previously general manager of the Bendix products division at South Bend, succeeds Mr. McLean in the Philadelphia division; **A. C. DeAngelis**, formerly plant manager at the Red Bank, N. J., plant, becomes general manager of the Friez instrument division at Baltimore; **W. B. Paine**, acting general manager of the Owosso, Mich., division, is appointed general manager; **H. A. Poole**, formerly works manager of the Norwood division, fills the vacancy left by Mr. DeAngelis at the Red Bank plant; Mr. Poole's post is in turn filled by **R. H. Crippen** and **George E. Stoll**, who has been assistant works manager at South Bend, becomes assistant general manager at that plant.

Conference

(Continued from page 15)

ton Co., New York City, Harvey L. Williams, field engineering mgr; Douglas Aircraft Co., Inc., Santa Monica, Cal., Irving H. Taylor, Eastern Regional Mgr; Diebold Safe & Lock Co., Canton, O., A. J. Roos, president, general manager; Edw. G. Budd Mfg. Co., Philadelphia, Pa., Harland Horton; Edo Aircraft Corp., College Point, N. Y., Geo. B. Post, vice president, sales; Fleetwings Division, Kaiser Cargo, Inc., Bristol, Pa., Chad Salhoun, project manager; Firestone Aircraft Co., Akron, O., John L. Cohill, vice president; Fairchild Aircraft Corp., Hagerstown, Md., Paul J. Frizzel, assistant general manager; General Electric Co., Schenectady, N. Y., E. G. Haven, assistant manager, aviation dept.

General Aircraft Corp., Astoria, L. I., N. Y., Joseph T. Geuting, vice president; Guiberson Diesel Engine Co., Dallas, Tex., Harry S. Zane, Jr., executive vice president; Globe Aircraft Corp., Fort Worth, Tex., Edwin H. Jackson, secretary; Glenn L. Martin Co., Baltimore, Md., Harry T. Rowland, vice president; Goodyear Tire & Rubber Co., Akron, O., R. E. Davis, assistant to vice president; Grimes Manufacturing Co., Urbana, O., Lewis B. Moore; G. & H. Aircraft, Inc., Willow Grove, Pa., Paul Thomas, vice president; Harlow Aircraft Co., Alhambra, Cal., H. F. Keenan, president; Hayes Manufacturing Corp., Grand Rapids, Mich., Renssaelaer W. Clark, president.

Hayes Industries, Inc., Jackson, Mich., Charles Hollerith, vice president, engineering; Howard Aircraft Corp., Chicago, Ill., C. W. Freitag, vice president; Interstate Aircraft & Eng. Co., El Segundo, Cal., Joseph W. Ray, Washington representative; Jacobs Aircraft Engine Co., Pottstown, Pa., J. Story Smith, vice president; Kellett Autogiro Corp., Philadelphia, Pa., Leonard Peskin, products engineer; Kropp Forge Co., Chicago, Ill., J. H. Lund.

Lockheed Aircraft Corp., Burbank, Cal., Sol W. Voorhes, assistant to the president; McDonnell Aircraft Corp., St. Louis, Mo., A. Ogden Pierrot, Washington representative; Menasco Manufacturing Co., Burbank, Cal., John E. Royall, president; Mercury Aircraft, Inc., Hammondsport, N. Y., R. F. Moore, director of procurement; Macwhyte Co., Kenosha, Wis., R. G. Diehl; Northrop Aircraft, Inc., Hawthorne, Cal., H. W. Cohu, Washington representative; Northwestern Aeronautical Corp., Minneapolis, Minn., Carl Granning, priorities director.

Piper Aircraft Corp., Lock Haven, Pa., W. P. St. John, contract manager; Parker Appliance Co., Cleveland, O., Archie Laurie, Washington representative; Republic Aviation Corp., Farmingdale, L. I., N. Y., A. T. Hapke, Jr., assistant director, military contracts; Rohr Aircraft Corp., Chula Vista, Cal., B. P. Lester, vice president; Ryan Aeronautical Co., San Diego, Cal., J. K. Wiseman, Washington representative.

Sperry Gyroscope Co., Inc., Greatneck, N. Y., Robert B. Lea, vice president for sales; Scott Aviation Corp., Lancaster, N. Y., Earle M. Scott, president; Simmonds Aerocessories, Inc., New York City, W. R. Enyart, president; Sparton Aircraft Co., Tulsa, Okla., Alfred Reitherman, assistant to the president; Summerhill Tubing Co., Bridgeport, Pa., J. P. Dods, director of research; St. Louis Aircraft Corp., St. Louis, Mo., E. Augustine, treasurer; Titeflex Metal Hose Co., Newark, N. J., George S. Pfouts, postwar research; The Aviation Corp., Detroit, Mich., Ira J. Snader, vice president, manufacturing.

Taylorcraft Aviation Corp., Alliance, O., J. C. Hart, president; Taylor Winfield Corp., Warren, O., S. M. Humphrey, executive engineer; United Aircraft Products, Dayton, O., Gunnar C. Karlson, liaison engineer; Western Electric Co., New York City, F. M. Harris, postwar planning; Walter Kidde & Co., New York City, A. H. Hobelman, vice president; Waco Aircraft Co., Troy, O., Hugh Perry, vice president; Warner Aircraft Corp., Detroit, Mich., L. A. Faunce, vice president; Weatherhead Co., Cleveland, O., H. Church.

Dow Chemical Co., Midland, Mich., L. B. Grant; United Aircraft Corp., East Hartford, Conn., L. L. Snow, Washington representative; Breeze Corporations, Newark, N. J., J. F. Luce, vice president; Luscombe Airplane Corp., Trenton, N. J., J. C. Collingwood; North American Aviation, Inc., Inglewood, Cal., Alex T. Burton, Washington representative; Lawrance Engineering & Research Corp., Linden, N. J., Charles L. Lawrence, president.

Airline Stocks Too High?

The sustained advance by airline securities in recent months has given rise to questions as to whether present prices are out of line. The following tabulation should serve to throw some light on the situation:

	Annual Earnings	Price Range High	Price Range Low	Price Times Earnings Ratio High	Price Times Earnings Ratio Low
AMERICAN AIRLINES					
1943 *	$6.00 est.	76	52	12	8
1942 **	6.03	58	25	9	4
1941	3.93	58	40	14	10
1940	4.78	75	41	15	9
1939	4.15	47	16	11	4
1938	.74	22	8	30	11
BRANIFF AIRWAYS					
1943 *	2.00 est.	20	8	10	4
1942 **	1.59	8	3	5	2
1941	.21 def.	5	3	..	..
1940	.19	..	..	..	..
1939	.11	..	..	..	..
1938	.07	..	..	..	..
EASTERN AIRLINES					
1943 *	9.00 est.	44	31	5	3
1942 **	9.84	34	16	3	2
1941	2.81	34	24	12	9
1940	2.80	44	25	15	9
1939	2.06	31	12	15	6
1938	.54	17	13	31	24
NORTHWEST AIRLINES					
1943 *	2.00 est.	23	15	10	7
1942 **	1.83	17	8	9	4
1941	1.39	14	7	10	5
1940	1.27	..	..	..	..
1939	.55 def.	..	..	..	..
1938	.26 def.	..	..	..	..
PENN-CENTRAL					
1943 *	.50 est.	20	15	40	30
1942 **	.95	11	5	11	5
1941	.36	14	6	39	16
1940	.43	22	11	51	25
1939	.20	11	5	55	25
1938	.08 def.	9	4	..	..
TRANSCONTINENTAL WESTERN AIR, INC.					
1943 *	2.00 est.	25	15	12	7
1942 **	2.29	18	7	8	3
1941	.51 def.	17	8	..	..
1940	.10 def.	21	10	..	..
1939	.13 def.	12	6	..	..
1938	.93 def.	10	4	..	..
UNITED AIRLINES					
1943 *	2.00 est.	33	17	16	8
1942 **	1.42	20	7	14	5
1941	.40	17	9	42	22
1940	.52	23	12	46	24
1939	.52	16	7	32	14
1938	.66 def.	13	5	..	..
WESTERN AIRLINES					
1943 *	2.00 est.	11	5	5	3
1942 **	1.69	6	2	35	1
1941	.01	5	2	500	200
1940	.34	7	3	20	9
1939	.18	5	2	28	11
1938	.03 def.	4	2	..	..

* 1943 earnings estimated.
** Past earnings from Moody's & Std. Poors.

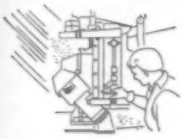
Aviation Stock Averages

	Week of July 30	Week of August 6	Week of August 13
DOW-JONES INDUSTRIAL AVERAGE	137.25	136.76	137.39
DOW-JONES RAILROADS	35.14	34.45	34.46
5 MAJOR AIRCRAFT MANUFACTURING COMPANIES	30.35	28.95	29.25
4 MAJOR TRANSPORT COMPANIES	38.94	36.28	39.00
7 SMALLER AIR LINE COMPANIES	14.20	14.19	13.91
4 SMALLER MANUFACTURING COMPANIES	9.84	9.37	9.62
20 AVIATION COMPANIES	22.32	21.26	21.90

New Offices for Emerson

Emerson Engineering Co., designers and manufacturers of precision products for the aircraft industry, has opened new offices and manufacturing facilities at 1418 S. Flower St., Los Angeles, Cal.

Women Are Operating QUICKWORK Rotary Shears



Fast cutting of steel, or dural, or stainless plate and stampings is being done every day by women operators in a number of leading aircraft plants. The simplicity of operation and accuracy of control of the Quickwork-Whiting Rotary Shear make possible accurate production at cutting speeds up to 40 feet per minute.

The Quickwork Shear is a versatile machine—saves space, time, and labor. It cuts straight lines, narrow strips, circles, and irregular shapes; forms flanges and joggles. Available in 12 standard models; capacities up to 1" mild steel. Write for bulletins and information.

Above: Close-up of flash trimming operation on a special alloy stamping of an airplane part.
Below: Woman operator handles accurate trimming operation on a curved aircraft stamping.

Photo courtesy Douglas Aircraft Co., Inc.

Other Quickwork **TIME SAVING** Metal Working Machines

Stamping Trimmers
Power Hammers

QUICKWORK-WHITING DIVISION

WHITING CORPORATION

15623 LATHROP AVENUE, HARVEY, ILL.

The Aviation Industry Is Served by Whiting Corporation with Cranes • Machines • and Matched Maintenance and Handling Equipment

Lightweight Aircraft Flooring Developed by Martin

ENGINEERS of the Glenn L. Martin Co. have developed a new lightweight plastic aircraft flooring, made from laminated phenolic sheet reinforced with aluminum alloy strips. The new flooring is said by the company to weigh approximately ¼-pound-per-square-foot less than other types of flooring of equal strength and carrying capacity.

"If the present estimates that a single pound of weight will be worth as much as $500 to the operator over the lifetime of an airplane are correct, the operator of a modern 50-ton flying boat, whose flooring area is 1,700 square feet, will save $211,500," says a Martin announcement.

The company claims that the need for a lightweight flooring was recognized by its engineers in 1941, and George De Bell, plastics expert, was given the problem of developing a plastic substitute for the corrugated aluminum flooring then in use. DeBell developed the laminated phenolic construction now known as Panelyte.

The Panelyte flooring requires no special procedures or bracing for its installation. It is laid on transverse frames 10 to 20 inches apart, and is attached to these frames with standard fasteners, rivets, or bolts. The or load surface is a laminated, molded phenolic sheet, and can be made with either a non-skid Morocco surface for flooring use, or with a smooth finish for table tops and similar applications in airplanes. The laminated top sheet is molded onto a corrugated base made from phenolic impregnated fabric with an aluminum alloy insert integrally molded into the lower horizontal surface.

The Martin company does not recommend the flooring for use in strictly cargo sections of planes since the phenolic surface is subject to cracking when struck a sudden blow, such as might occur during loading operations.

The thickness of the aluminum insert, which is included to equalize the tension values on the bottom with the compression values of the top surface, varies directly with the weight of the laminated sheet, the engineers point out.

Martin's giant Mars now has a Panelyte flooring in its after deck, the company reveals.

Bell Aircraft Will Start Vermont Plant by Sept. 15

Bell Aircraft Corp. has taken over buildings of the old Queen City Cotton Co. in Burlington, Vt., and will move a part of its ordnance division there from Buffalo with the expectation of having 4,200 employes at work by Sept. 15.

Defense Plant Corp. has announced a contract with Bell to provide the Vermont facilities at a cost of approximately $2,000,000. Another DPC contract will provide $450,000 for additional Bell plant facilities in New York.

Manpower

(Continued from page 17)

mittee had been given factual data by both the airframe and parts manufacturing industry in support of pleas for blanket deferment of key men.

T. T. Arden, president of the Aircraft Parts Manufacturers Association and vice president of Grayson Heat Control Co., told the committee that of 124 parts manufacturers who had been queried, 107 were behind production schedules as much as 60% because of manpower shortage, while the average production lag for all was 20.5%.

"This is despite the fact that during the past 12 months these same companies have increased the number of production workers 47½%," he said. "At the present time 37% of the employes are women. Insofar as parts manufacturers are concerned, we are worse off than major aircraft companies due to selective service losses. Our men who produce small and intricate parts must have a high degree of skill."

Vernon H. Reed, United Aircraft Products, Inc., personnel director, reported his company had lost 10,400 productive man-hours in July for lack of manpower, enough labor to build 130 landing gear assemblies. He predicted a 50% cut in his firm's production during the next six months unless blanket draft deferment is granted.

Raymond B. Wells of Wells Aircraft Parts Co. pointed to selective service requirements which provide that machinists must have had four years' experience to qualify for deferment. He said the greatest portion of Southern California parts industries grew up during the past three years, necessitating training skilled machinists during that period—consequently a majorty of workers are faced with the draft.

In Washington, Dr. A. E. Lombard, Jr., manpower consultant for ARCO, went on record with a declaration that the only way to solve the problem is to lower draft quotas. WMC Chairman Paul McNutt said aircraft workers are the most serious problem in the nation today.

Under Secretary of War Robert P. Patterson, one of those who toured the West Coast, showed the concern of the War Dept. in a statement saying: "The War Dept. has been gravely concerned over our inability to get as many planes as our schedules call for . . . We are giving special attention to methods of insuring an adequate labor supply for these plants and of cutting down the rate at which workers are leaving to take other jobs. . . . In the interest of a speedy termination of this war, we must succeed in eliminating the factors that have held up aircraft output."

Meanwhile, Bernard Baruch was making a study of the manpower problems, with special emphasis on the situation in aircraft factories, as part of a continuing inter-office examination of war production progress recently undertaken by the War Mobilization Committee. According to information from the office of Mobilization Director James E. Byrnes, Baruch's findings will not be made public but will be transmitted from time to time to the agencies concerned.

"DON'T FLY BY THE SEAT OF YOUR PANTS"....

Let us buy your insurance

Seven years devoted exclusively to the Aviation Industry as brokers of *all kinds of insurance.*

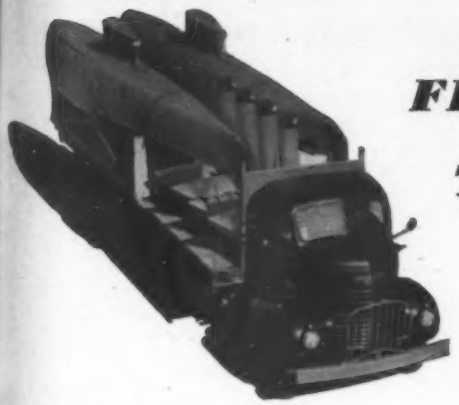
SPECIALISTS IN PILOT INSURANCE

We have no axe to grind but yours

CONTACT US FOR CONSULTATION

Aviation Insurance Sales
INCORPORATED
JACKSON HEIGHTS
NEW YORK

BALTIMORE — CHICAGO — DETROIT — WASHINGTON



FROM COLLEGE POINT..

TO THE SEVEN SEAS

Edo seaplane floats move in ever-increasing volume

Special trucks, carrying two complete seaplane float installations including wing tip floats, roll out through Edo's plant gates with time-table regularity.

18 years of "know-how" in the design and manufacture of all-metal seaplane float gear account for the ability of the Edo organization to maintain production schedules that meet the needs of a global war. Particularly, does this specialized experience count for exceptional performance in Primary Erection where highly skilled and trained craftsmen assemble the float structures—first bolting the bulkheads to the cross arms of multiple assembly jigs; then riveting the longitudinal members to the bulkheads; next riveting side and bottom sheets in place and making the floats ready for decking, water-testing, etc.

Modern, up-to-date tooling and processing technique providing accurate interchangeable parts for rapid mass production of assembly, contribute vitally to speed in the output of the Primary Erection department where Edo floats first take form. But experience is the prime factor in building a product of uniform quality in large volume—so that the "world's finest seaplane floats" may move in ever-increasing quantities to ramp, beach and catapult deck . . . to every operational point of our far-ranging seaplane squadrons.

EDO AIRCRAFT CORPORATION, 407 SECOND STREET, COLLEGE POINT, L. I., N. Y.

★ EDO FLOAT GEAR ★

SERVES THE UNITED NATIONS

DOWN THE Manufacturing LINE

Out at the Hughes Aircraft Co. in Culver City, Cal., Edward G. Bern, the recently appointed general manager, has been donning overalls and working with the crews, alternating from one shift to another in order to have a first hand acquaintance with all the workers. In the meantime, he has mailed to every Hughes worker at his home address a letter and a questionnaire asking for frank comments on various phases of production and organization in the plant. "Bear in mind that this is a 100% experimental airplane," he wrote his workers. "It is the largest ship in the world; it is something vitally necessary to our government, and in every stage of its development it is going to be a difficult task. That is why I am asking for your suggestions and constructive criticism, hoping that your answers will show the way to more speed in the construction of these cargo planes . . . Don't pull any punches where you believe a punch is needed." He told each worker that "on the successful operation of the airplanes on which you are now working depends the prestige of America to lead the world in oceanic commerce." He called the questionnaire a "private conversation form" and asked that it be returned to him at his residence.

●

As though they didn't have enough troubles of their own, West Coast aircraft plants have been running an advertising program to try to get people to take jobs in laundries and restaurants. A study of absenteeism showed that women employes, in particular, were having such trouble getting their washing done, and getting their meals in restaurants, it was seriously affecting their employment. "The result was," says Harry Woodhead, president of Consolidated Vultee Aircraft Corp., "that we had to start an advertising campaign to urge people who are unemployed to please take jobs in laundries and restaurants so our own people could stay on their jobs. We think every worker we can place in a laundry is worth three new workers in our own plants."

●

Finding that 80% of its employment turnover was coming from new employes, people who quit within 30 days of the start on the job, Fairchild Aircraft's Burlington, N. C., plant developed an employe "induction" system which has reduced that turnover by 50%. The induction program is described as "a practical introduction of the new employe to his new routine, and is designed to anticipate and allay uneasiness." The induction director takes over all new employes each day, takes them on a tour of the plant, explains all rules and regulations and personnel services which are provided, takes the worker to the department where he will be employed and in general "introduces" him to the plant so that he will feel "at home" when he starts to work.

●

Even when school opens this fall, Bell Aircraft Corp., Buffalo, N. Y., intends to hang on to several hundred of its 'teen age boys who have been helping build Airacobras. A plan has been worked out whereby the boys will attend their regular high school classes, will report after school hours to work three days a week on the "victory shift" until midnight. If a boy is unable to keep up his school work, he will be dropped by the factory.

C. G.

Headquarters for Computers

Our staff of engineers specializes in solving complicated problems by means of simple computers that are easy to understand and operate. Mental calculations are reduced to a minimum.

Hydrometer Kit

Takes the guesswork out of fuel-weight computation. The weight of gasoline, per gallon, varies with temperature and octane rating. This kit accurately measures the weight of the fuel actually being loaded and permits maximum and correctly distributed fuel load. $15.

COX and STEVENS AIRCRAFT
CORPORATION
Navigational Instruments

P. O. Box 30 Mineola, N.Y.

1942 Net Income Of $13,143,515 Reported by Curtiss-Wright

A "PRELIMINARY" financial report has been released by Curtiss-Wright Corp. showing a net income of $13,143,515 for 1942 or a percentage of 1.706% to sales after renegotiation, taxes, and deductions for postwar reserves. Federal income and excess profits taxes payable for the year amounted to $84,373,264, to be reduced eventually by the postwar refund of $7,993,000.

In releasing the report, G. W. Vaughan, president of C-W, stated that renegotiation of the company's war contracts for 1942 have been concluded with the local renegotiation panel, but have not been finally approved by government authorities in Washington, and that renegotiation proceedings have delayed publication of the annual report.

"The Securities and Exchange Commission required that the company's financial statement for 1942 be filed not later than August 15, 1943, whereupon the statement would become a public record," said Vaughan. "Under the circumstances, it was decided to make public such information as is available based on the present status of the renegotiation proceedings. When these have been finally concluded, a detailed annual report will be published.

"Our directors believe the company should continue to build up a reserve for postwar expenditures, and have authorized a further provision of $7,993,000, which is deducted from the 1942 income and which approximates the amount of postwar credit which will be represented by an obligation of the United States government, the proceeds of which will not be available until after the war."

Vaughan revealed that shipments for the year ended Dec. 31, 1942 were more than double those of the previous year, and almost six times those of 1941. He cited the following figures:

YEAR	SHIPMENTS
1942	$770,594,882
1941	373,083,364
1940	138,720,151

"Capital expenditures for the year," said Vaughan, "have been made in the amount of $4,651,771 and were chiefly for equipment and buildings to conduct a more intensive engineering and development program. Construction has been started on the most important project covered by this program—a wind tunnel and research laboratory more modern than anything undertaken by an individual corporation in the United States to date, and permitting of research on airplanes up to 750 miles per hour.

"The cost of this laboratory and tunnel will be slightly in excess of $3,000,000 and we believe will put the company in an excellent position to continue its development policy. When completed it will be the only equipment of its kind in the world that is wholly owned by a corporation, but for the war period it will be made available to other aircraft manufacturers to accelerate the war effort."

THE "INSIDE" STORY OF STREAMLINES

An airplane engine's cowling has more to it than the sleek metal fairing that meets the eye. In front of the fire-wall . . . up where the "horses" are — cowlings, cowl wells, muffs, heat exchangers and anti-monoxide exhausts are stars in the Solar system. On all air battle fronts, the "inside" story of *streamlines* . . . of efficiency, heating, and safety, too, is often the coordinated assembly of vital Solar equipment in fighting planes.

ARMY E NAVY

SOLAR

EXHAUST SYSTEMS—

SOLAR AIRCRAFT COMPANY • SAN DIEGO 1, CALIFORNIA

7 Good Places to STOP

1 Atlanta, Ga. ★ The Ansley
2 Savannah, Ga. ★ The Savannah
3 Birmingham, Ala. ★ The Tutwiler
4 Greensboro, N.C. ★ The O.Henry
5 New Orleans, La. ★ The St. Charles
6 Nashville, Tenn. ★ The Andrew Jackson
7 Montgomery, Ala. ★ The Jefferson Davis

DINKLER HOTELS
CARLING DINKLER, PRESIDENT

B-H
MANUFACTURERS of SHEET METAL and TUBULAR ACCESSORIES

SHEET METAL FABRICATION

CONTRACTORS TO ALL LEADING ENGINE and PROPELLER MANUFACTURERS

B-H AIRCRAFT CO.
LONG ISLAND CITY NEW YORK

Leading Aviation Stocks

New York Stock Exchange

	Week Ending August 14				Week Ending August 21			
	Sales	High	Low	Net Change	Sales	High	Low	Net Change
American Airlines	2,600	69½	64	+5½	1,900	69½	65½	—4
Aviation Corp	26,700	4½	4⅛	+ ⅛	13,400	4½	4⅛	— ⅛
Bell Aircraft	1,700	14	13⅝	+ ⅛	2,600	14	13¼	— ⅜
Bendix Aviation	5,300	35⅞	33¾	+1⅞	3,400	35¾	34⅞	— ⅞
Boeing Airplane	3,700	15⅞	15⅛	+ ½	3,300	15⅝	15	— ⅝
Consolidated Vultee	7,200	15½	14⅜		9,200	15	13½	—1½
Consolidated Vultee pfd.	1,000	23¼	23	+ ⅜	1,500	23½	21⅝	—1
Curtiss-Wright	22,300	7⅜	7		25,400	7½	7	— ⅜
Curtiss-Wright A	1,600	20¼	19¾	+ ¾	3,000	20¼	18⅞	— ⅞
Douglas Aircraft	1,700	61¼	59½	+ ¼	2,600	60¼	58½	—1¾
Eastern Air Lines	1,500	38½	36½	+2½	2,200	38¾	36½	—2⅛
Ex-Cell-O	1,100	24⅞	24⅛	+ ⅛	800	25⅝	24⅛	— ⅝
Grumman Aircraft Eng.	1,100	12⅝	12⅜	+ ⅛	2,100	13⅛	12½	— ⅛
Hayes Industries	1,400	7½	7⅛	— ⅛	500	7½	7¼	
Lockheed Aircraft	5,400	18⅛	17½		8,600	17⅞	16⅝	—1⅛
National Aviation	2,800	12½	11⅞	— ⅛	4,200	12½	11⅜	+ ⅛
North American Aviation	8,800	10⅛	9⅞	+ ⅛	6,000	10¼	10	— ⅛
Pan American Airways	23,200	37¼	34¾	+3½	14,000	37¼	34	—3⅝
Penn Central Airlines	7,800	17¾	16¼	+1⅛	1,900	17⅜	16	—1⅜
Sperry Corp	3,500	27¼	26⅝	+ ⅛	4,400	27½	26⅛	— ⅜
Thompson Products	600	30	29	+1	400	30⅛	29½	+ ⅛
Trans & Western Air	4,400	21⅝	20½	+1¼	1,500	21⅞	20¾	— ⅝
United Air Lines	17,300	29½	27¾	+1	13,400	29⅝	27	—2⅛
United Aircraft	7,300	32⅞	31⅛	+ ⅞	6,000	32⅞	30⅛	—2⅝
United Aircraft pfd	700	108¼	107	+ ¾	400	107½	107⅜	+ ⅛
Wright Aero					3,000	90½	88	—2

New York Curb Exchange

	Week Ending August 14				Week Ending August 21			
	Sales	High	Low	Net Change	Sales	High	Low	Net Change
Aero Supply B	400	4⅛	4	— ¼	300	4⅛	4	
Air Associates	200	7	7	— ⅛	100	7	7	
Aircraft Accessories	5,300	3⅝	3	+ ½	4,900	4	3¼	— ½
Aro Equipment	1,100	20¼	17½	+3¼	700	20½	19¼	— ⅝
Bellanca Aircraft					600	2⅞	2¾	— ⅛
Breeze Corporations	1,100	10¾	10	+ ⅝	2,300	11¼	10¾	
Brewster Aero	1,500	4⅛	3⅞	+ ⅛	2,600	4	3¾	— ⅛
Cessna Aircraft	3,500	9⅜	8⅝	+ ½	3,200	9	8½	— ½
Colonial Airlines	2,500	9⅛	7¾	+ ¼	1,500	8½	8	— ½
Fairchild Aviation	800	8¼	7⅞	+ ⅛	1,400	8⅞	8⅜	+ ¼
Fairchild Eng. & Airplane	4,200	2¼	2		1,900	2¼	2⅛	
Irvin Air Chute	400	9	9	+ ¼	200	8¾	8¾	— ⅛
Republic Aviation	3,100	3⅝	3¼	+ ⅛	3,400	3⅝	3¼	— ⅛
Ryan Aero					100	3⅞	3⅞	+ ⅛
Solar Aircraft	600	3⅝	3⅜	— ⅛	1,400	3⅞	3⅝	
United Aircraft pfd	1,200	10⅜	9⅝	+ ¾	1,100	10⅞	10	— ⅛
Western Air Lines	1,200	9⅝	9	+ ⅜	600	9½	9	— ⅜

Over the Counter Market in Aviation Securities

(Close of business, August 16, 1943)

	Bid	Offer
AIRLINES		
All American Aviation	3½	4¼
American Airlines, Pfd.	118½	120
American Export Airlines	31	32
Braniff Airways	17¼	17½
Chicago & Southern Air Lines	14⅜	14¾
Continental Air Lines	8¼	8¾
Delta Air Lines	20	23
Mid-Continent Airlines	5⅞	6
National Airlines	14¾	15¼
Northeast Airlines	7½	7⅞
Penn-Central Airlines, Pfd.	34¼	35
MANUFACTURERS		
Aeronca	3⅜	3⅝
Aircraft & Diesel	1¾	2
Aircraft Accessories	3¾	3⅞
Columbia Aircraft	¾	1¼
General Aviation Equipment	..	2½
Harlow Aircraft	.30	.45
Jacobs Aircraft	4⅜	4¾
Kellett Aircraft	2¼	2½
Kinner Motors	.95	1.10
Liberty Aircraft	9⅞	10¼
Northrop Aircraft	6⅜	6⅝
Piper Aircraft	5¼	5⅝
Pittsburgh Aviation Industries	..	7¼
Rohr Aircraft	5⅞	6⅛
Taylorcraft	¾	1.00
Timm Aircraft	.80	.90
United Aircraft Products	17½	18½

Dowty Equipment Corp. Now Hub Industries, Inc.

The name of the Dowty Equipment Corp., of Long Island City, New York, has been changed to Hub Industries, Inc. according to an announcement by Alec E. Ulmann, president. There is no change in the directors or officers of the corporation, and the management will remain as follows: Colonel Henry Breckinridge, chairman of the board of directors; Alec E. Ulmann, president; Maj. Gen. (Ret.) Walter A. DeLamater, vice president; H. A. Goldstein, vice president; and Thomas F. Hanley, treasurer and general manager.

Ulmann

Hub Industries, Inc., will continue to manufacture hydraulic pumps, landing gears, gear pumps, hand pumps, filters, selector valves, and related products, and will carry on its experimental work with the U. S. Army Air Forces and aircraft manufacturers, the announcement said.

M.A.P.

MIDWEST AIRCRAFT PRODUCTS

for the future

AFTER Victory is won, comes whatever the Future may hold—and it holds much of promise for the great industry of Aviation.

M.A.P. engineering is even now working and planning toward that day—when we shall see the dawn of a new Future for us all.

And yet nothing in this thought of Tomorrow at M.A.P. is allowed to interrupt the present production of OIL DILUTION and PRIMER VALVES—both Electrical and Manual—for the Aircraft so vital to the winning of the War.

M.A.P.
MIDWEST AIRCRAFT PRODUCTS

MIDWEST AIRCRAFT PRODUCTS, Inc.
DAYTON, OHIO – *Birthplace of the Airplane*

LET'S ALL BUY MORE WAR BONDS AND STAMPS!

Advertisers In this Issue

Company	Page
Air Transport Association Passenger Division	10
Aircraft Publications	67
AiResearch Manufacturing Company Division of the Garrett Corp	66
Allison Division of General Motors Corporation	61
American Airlines, Inc.	14
Aqua Systems	49
Aviation Insurance Sales	80
B G Corporation	86
B-H Aircraft Company	84
Beech Aircraft Corporation	13
Bellanca Aircraft Corporation	59
Bendix Aviation Corporation Scintilla Magneto Division	39
Boeing Airplane Company	9
Boots Aircraft Nut Corporation	40B
Braniff Airways, Inc.	31
Celanese Celluloid Corporation	43
Cleveland Pneumatic Tool Company	54
Continental Motors	71
Cox & Stevens Aircraft Corp.	82
Darnell Corporation, Ltd.	74
Dinkler Hotels	84
Douglas Aircraft Company, Inc.	47
Dumore Company	6
Edo Aircraft Corporation	81
Fleetwings, Division of Kaiser Cargo, Inc.	25
Goodrich Company, The B. F.	8A-D
Grand Rapids Industries, Inc.	87
Grand Rapids Varnish Corporations	73
Guardian Electric Manufacturing Company	53
Hallicrafters Company	33
Hayes Industries	5
Kollsman Instrument Company	35
Lawrence Engineering & Research Corporation	64
Marquette Metal Products Company	63
Midwest Aircraft Products	85
Motor Rebuilding Specialties	4
Northrop Aircraft, Inc.	11
Otto Aviation Corporation	74
Piper Aircraft Corporation	51
R. C. A. Victor Division	29
Radio Receptor Company	7
Ranger Aircraft Engines Division of Fairchild Engine & Airplane Corp.	27
Republic Aviation Corporation	2d Cover
Reynolds Metals Company, Inc.	44-45
Ryan Aeronautical Company	36
Simonds Saw and Steel Co.	3
Solar Aircraft Co.	83
Southeastern Air Express, Inc.	57
Standard Oil Co. of N. J.	46
Suncook Mills	86
Texas Company	88
Transcontinental & Western Air, Inc.	26
Vega Aircraft Corp.	23
Vokes, Ltd.	37
Whiting Corporation Quickwork Whiting Div.	79
Whiting Corporation Aviation Division	62
Wittek Manufacturing Company	86
Wright Aeronautical Corporation	40A

DPC Authorizations

CLARKE AERO-HYDRAULICS, INC., Pasadena, Cal., for additional machinery and equipment, $100,000; overall commitment, $315,000.

UNITED ELECTRONICS CO., Newark, N. J., for additional facilities in New Jersey, $95,000; overall commitment, $200,000.

MURRAY CORP. OF AMERICA, Detroit, Mich., for additional facilities at plants in Michigan and Pennsylvania, $1,800,000; overall commitment, $7,300,000.

BELL AIRCRAFT CORP., Buffalo, N. Y., for additional facilities in New York, $450,000, and for facilities at Burlington, Vt., $2,000,000; overall commitment, $22,500,000.

CONSOLIDATED VULTEE AIRCRAFT CORP., San Diego, Cal., for additional facilities at plant in Louisiana, $5,550,000; overall commitment, $11,350,000.

NASH-KELVINATOR CORP., Detroit, Mich., additional facilities in Michigan, $1,660,000; overall commitment, $34,000,000.

BREWSTER AERONAUTICAL CORP., Long Island City, N. Y., additional facilities in New Jersey, $90,000; overall commitment, $225,000.

AIRESEARCH MFG. CO., Phoenix, Ariz., additional equipment at plant in Arizona, $70,000; overall commitment, $1,725,000.

BENDIX AVIATION CORP., Baltimore, Md., additional facilities in Maryland, $60,000; overall commitment, $660,000.

HIGGINS AIRCRAFT, INC., New Orleans, La., additional equipment in Louisiana, $300,000; overall commitment, $26,000,000.

FAIRCHILD ENGINE & AIRPLANE CORP., Hagerstown, Md., additional facilities in North Carolina, $400,000; overall commitment, $800,000.

Contractors to the United States Army, Navy and Coast Guard and Aircraft Engine Builders.

THE BG CORPORATION
136 W. 52nd Street New York

WITTEK *AVIATION* HOSE CLAMPS
Standard Equipment on
"BOEING B-17F FLYING FORTRESS"

Since the beginning of modern aviation Wittek Hose Clamps have been known as the standard of the industry. Today they are being used by the nation's leading military aircraft and engine builders.

WITTEK Aviation HOSE CLAMPS

WORLD'S PREMIER AIRPLANE FABRIC
LIGHTER STRONGER SMOOTHER
FLIGHTEX
SUNCOOK MILLS - 40 WORTH ST. - NEW YORK, N. Y.
Leading Manufacturers of Fabric and Tapes for the Aircraft Industry.
FLIGHTEX FABRIC
Export Representative - Aviation Equipment & Export, Inc., 25 Beaver St., N. Y.
Cable Address — Aviequip